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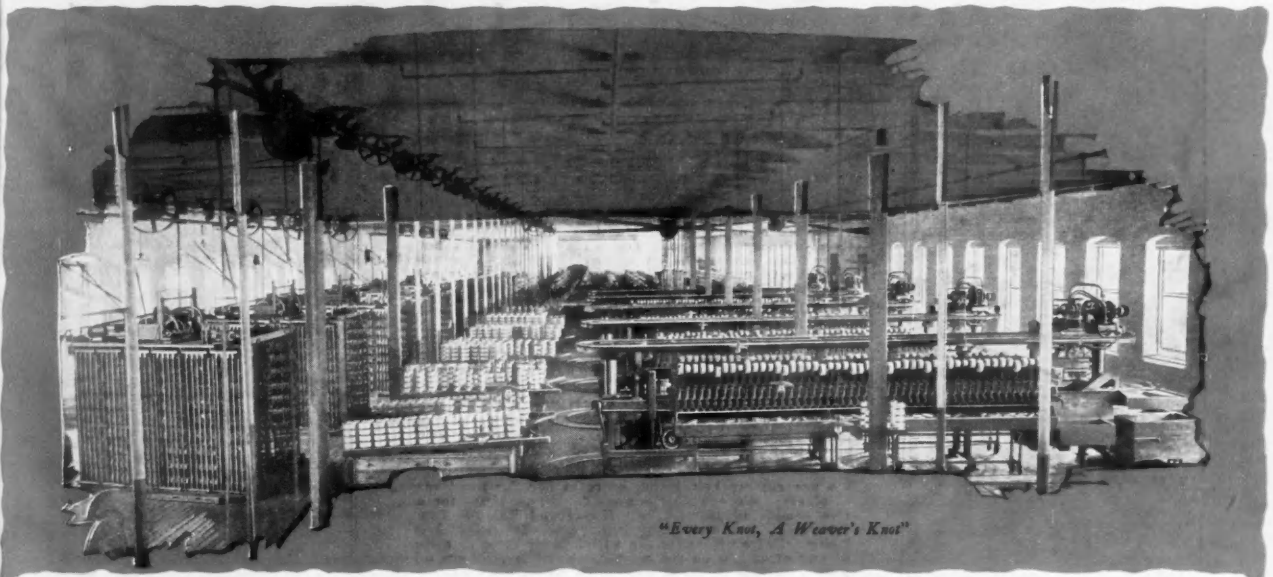

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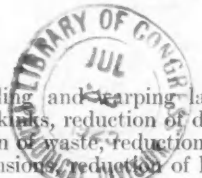

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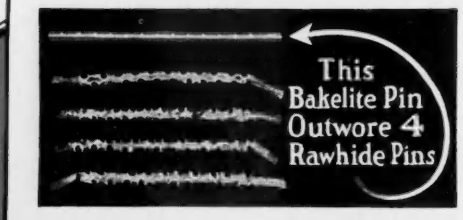

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COTTON

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Deal Direct with the Manufacturer

With the Publishers—

Filing a Claim on Mill Ideas

Do you read COTTON with a pencil?

"In the business world it is probable that not a man is without a pencil, either in his pocket, or his hand; and no wise reader neglects to mark passages in book or magazine or paper which he desires to use later," said a writer in the Chicago Journal of Commerce.

This writer goes on to quote a prominent automobile man: "It would be just as ridiculous for a prospector to forget to mark the place where he discovered gold, as to see a man reading a book without locating the nuggets of ideas with his pencil."

You are not going to find that every paragraph and every advertisement in every issue of COTTON is of immediate value to you. You will not admit all of them to your mind or memory at once.

As one writer on the workings of the human mind pointed out, a group of ideas may be compared to a great number of persons who crowd about an office waiting for an interview with the man inside. The ones admitted first are those having something to do with what already is in the mind.

In other words, a textile man who was having trouble with waste would naturally be most interested in seeing an article on how some other operating executive had ended the trouble.

Therefore the other ideas must wait outside in the ante-room of the mind until the man wants to see them. But they may send in their cards or names and state what their business is, so that the man inside will know they are waiting. When he wants them he will admit them; he wants to take up the most pressing matters first.

It's the same way in reading COTTON. A textile executive in going over the pages will notice things he wants to read later. Or he will see something that he wants to call to the attention of somebody else, just as he might turn over some of his callers to a department head who could give them proper attention.

Reading with a pencil and marking these paragraphs or articles—and advertisements may be just as helpful—makes a record of the idea-visitors that are waiting for attention.

Then too, an executive may be reading COTTON away from his office. A great many do. Some prefer to read it at home in quiet. Others take it along on business trips. Here are occasions when the filing of a claim on some of the profitable ideas can be done at the time of discovery.

Pencil marks about articles and advertisements in COTTON are business cards of valuable ideas likely to be needed sooner or later.

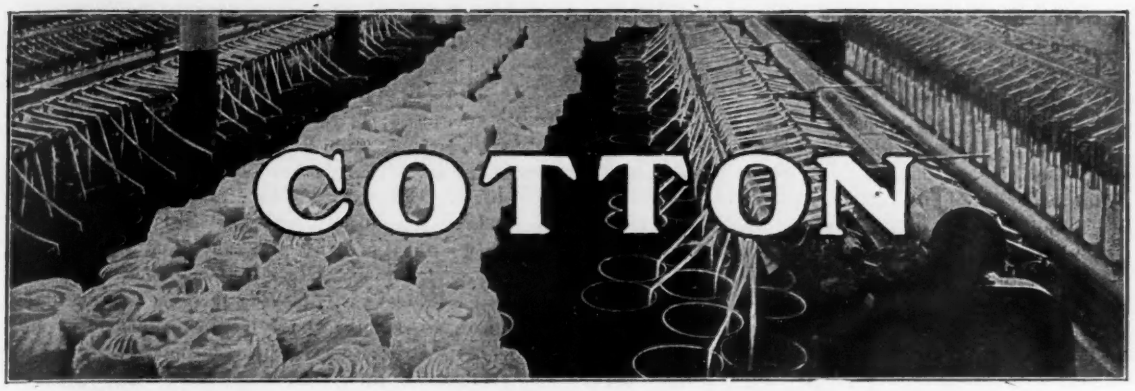
AMONG COTTON'S READERS

W. W. Arnold, Jr., General Superintendent,

Manchester [Ga.] Cotton Mills.
Milstead, [Ga.] Manufacturing Company.
Unity Cotton Mills, LaGrange, Ga.
Unity Spinning Mills, LaGrange, Ga.
Hillside Cotton Mills, LaGrange, Ga.
General Chairman, Textile Operating Executives of Georgia

"I think COTTON is the most instructive and interesting textile magazine that I have ever had the pleasure of reading."

W W Arnold Jr.



July, Nineteen-Twenty-Five

Those European Debts.

Of all the international questions now before the country, the one that has engaged the most continuing discussion is that having to do with the big loans made by the United States to countries associated with ours in the closing events of the World War. These debts, with accumulated interest, now total around $12,000,000,000. This is a staggering sum of money, amounting practically to all the gold bullion in the world and nearly four times all of our purchases from abroad during the last year.

And of all international questions, there probably is most unanimity of opinion in this country on that one. It is that the debts should, even must, be collected. This opinion, as well as general discussion of the subject, has to do more with what ought to be than with what can or will be. While all agree that the debts ought to be paid, few who have given the subject close scrutiny have any notion that any large portion of them ever will be collected. And not all are of the opinion that they can be collected profitably; that is, in money or its equivalent.

There hasn't been much said along those lines, for the simple reason that opinion for collection has been so overwhelming that it was useless, if not dangerous, to make statements of that kind. There is good reason to believe that the attitude of the Government towards the debts question has been a compromise with public opinion and whatever otherwise might have been done. What this might have been is beyond speculation for the reason that it is evident the Government itself doesn't know just what should be done decisively regarding the problem.

It is one of the most puzzling economic problems that the Government ever has had on its hands. The past throws no light on it, for no such huge debts ever before were owed to one Government by others. The nearest to them were the debts owed to Great Britain following the Napoleonic wars and which, at least in the main, were cancelled. Indemnities following successful war have been collected by government from government, but none has been so large as our war loans to Europe. Other countries are now endeavoring to make a somewhat similar collection, as indemnity, from Germany but, so far, with no great success.

The problem has been viewed, so far, largely as a moral one when it is predominately an economic one. The loans are thought of in terms of business obligations. But there is little exact analogy. Moreover, business men sometimes find that it doesn't pay to collect a debt and modern law provides a refuge for debtors who are unable to pay.

No doubt Europe can pay. Great Britain, which was most drawn on financially by the war, is paying. A few of the smaller countries have arranged to pay. But others show little intention of doing so. Italy declares practically that she won't pay, and France hints to the point of declaration to the same effect.

If they won't pay, what are we to do about it? And if they do pay, what in? Gold? We have far more than we need. Goods? We don't get much raw material, particularly of kinds we don't produce, from Europe. We get manufactured goods largely of kinds which we produce. Will it profit us to close down factories and wreck large investments by filling our markets with goods shipped from Europe to meet war loans? Moreover, shall we sell less and take more from Europe—our best customer—while the debts are being paid, and thus set back the industrial gains we have made?

Recently the British Ambassador to this country declared that if we continue to collect from his government we must buy more and more of British goods. Among those who heard him were many who wore shirts made of a British material scarcely heard of in this country a few years ago. A direct relation probably could be traced between those shirts and payments on the British debts. Then, in the other direction, it might be possible to find a relation between those shirts and closed-down or slowed-up mills somewhere in the United States—and at a cost far greater than the collections thus balanced.

This doesn't mean that the debts should be cancelled—not yet at any rate. It is possible that the collections can be absorbed in the "invisible balances" trusted to by Herbert Hoover. These are represented by loans abroad and by exchanges of goods in countries outside of Europe. More than a billion dollars went out of the country for foreign investment last year. It may be that we can collect, for example, from Great Britain in the form of South American coffee or East Indian rubber paid for with goods manufactured in Birmingham or Manchester.

But Secretary Hoover's invisible balance theory is yet to be proved. The lesson of history, that collections of this sort of debts must be made ultimately in the form of goods produced in the paying countries, still apparent-

ly holds. And it is natural for those countries to offer us goods that will supplant, in so far as possible, the sort which we produce. And it is natural for them, too, to look elsewhere when practicable for what they want to buy.

To collect any great proportion of the war debts in the form of European goods or increased volume of services—other than perhaps the entertainment of tourists—might be far more costly to us in the end than what we receive.

So long as the debts stand we are provided with a mighty club which might be used in many ways helpful both to the United States and to Europe. To date, however, it has served only to arouse and intensify a feeling of rancor toward us. And this largely is because American public opinion revolves around the morals rather than the economics of the question. Once the public comes around to the realization that, whatever the moral equation, no great proportion of the debts are likely ever to be collected in gold or goods, the economics of the problem will have a day in court.

The Shipping Board's Phantom Ships.

For more than 800 apparently good sea-going steamships that cost the public hundreds of millions of dollars to be sold, as scrap, for a few hundred dollars each would seem to be, off hand, an unwarranted and excuseless proceeding. Yet that is what the majority group in the United States Shipping Board proposes to do—and, no doubt, wisely.

It is probably because of the superficial appearance of the proceeding that the chairman of the board has besought Henry Ford to buy and scrap the ships; for the popular mind evidently will not associate the name of the flivver king with any business proceeding that isn't holy. Though in buying the ships he would be as canny as in other operations that inure to his great prosperity, Ford probably would render a great public service in thus conspiring to wipe from existence these glaring evidences of the most stupendous blundering the country ever knew.

When viewed uncomparisoned, they are good vessels. But in reality they are little more than phantom craft. They were built during the war, hurriedly, for an immediate emergency need. They were designed unintelligently. They are too small and not properly equipped for long distance service and they are so constructed that few of them can be re-equipped economically. Scarcely any of them has rendered any service, all of them merely rusting at anchor and absorbing an upkeep cost that swells the continuing losses on Shipping Board operations.

These vessels might come in handily in case of war, which fact gives validity to the argument of the majority members of the board that they should be retained as war reserves. Handier still would be large fleets of privately owned and properly equipped ships—but such are not apt to come into existence so long as these phantom ships of the Shipping Board frown with threat of ruinous competition backed by the Treasury of the United States.

Those members of the Shipping Board who oppose the scrapping plan are the ones who look with most sympathy on the theory of government ownership and operation. If the spending of more than five billions of dollars on government ownership and operation has resulted in failure, by what argument can such a theory be sustained? If privately owned shipping should develop to a point desirable for national economy and safety, those who favor the theory would demand that these Government ships be put in service ostensibly to keep rates down but, in fact, to wreck private enterprise. Private interests know very well that they can't compete with the Federal Treasury and they are not apt to take the great risk of being crushed by such competition. That risk faces them so long as there is in the hands of a politically made-up board in Washington an immense tonnage of vessels—any kind of vessels—which might be brought into use at any time, the public meeting the losses as it is meeting those on present Shipping Board operations. Hence these ships should be disposed of—even, if necessary, by reducing them to scrap. The fact that they are of steel raises them but slightly above the futile flotilla of wooden ships which long ago were scuttled.

Whatever the Shipping Board does as to this or any other matter, there is one thing which Congress by all means should do at its next session. It should get rid of the Board as an agency for holding and operating ships. If a regulatory body of the kind is needed—which is doubtful—the board might be retained for those quasi-judicial functions for which it chiefly was created. Of all modern-day operations of government those carried on through this board have been the most costly and on the whole the most futile. Whatever remains of its ships and its Emergency Fleet Corporation should be transferred to the Department of Commerce, where they would have the benefit at least of one-man control as against the multiple management which time after time has proven to be impossible in such operations.

The New Immigration.

Operations of the severely restrictive immigration law passed by Congress in 1924 now cover a year's time. All of the figures are not yet available but the law seems to have worked very well, particularly in cutting down the number of all, and especially undesirables, who seek to come into the country as immigrants. The total legal immigration for the last fiscal year was not much if any more than 250,000, whereas only a few years ago more than a million came in each year. A majority of those who now come are from countries in this hemisphere, to the peoples of which no quota restrictions apply. These come chiefly from Canada and Cuba. The bulk of the European immigrants have come, as was expected, from "Nordic" lands, like Great Britain and Scandinavia. The immigration from Russia and Southwestern Europe has been negligible, as the allowable quotas for those countries are small. Italian immigration was offset, for instance, by the return of former immigrants to their native land.

No one knows what the illegal immigration has amounted to. Present laws have caused the "bootlegging" of aliens to become a big industry. A large number no doubt have been slipped into the country. This phase of the problem is probably beyond complete solution. But as time widens the gap between immigrants and relatives or friends who would join them in this country, the evil will decline.

Many students of the subject say that the selective prin-

ciple, on which the national policy is now fixedly based, should be carried further. Under the quota allowances, immigrants are permitted to come in the order of application for the privilege. The only passing on of individuals relates merely to physical condition and ability to read. A shoe string peddler can get in as easily as a farmer or stone cutter.

Since they are to be selected, why not choose them with reference to the country's need as well as their own desire to come? If that were done intelligently, immigration could be used constructively for the country's benefit. The trouble with past and even present immigration is that, in great part, it merely tends to pile up where least needed in a true economic or social sense instead of filling up niches of real need that can be provided for only by rigid personal selection.

Cotton Cloth Analysis

BY ARTHUR H. DICK

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Value of Cloth Analysis.

The ability to analyze cloth samples, and analyze them right, is one of the most valuable assets of any practical mill man or designer. One of the best methods to follow in order to become proficient in analyzing cloth samples is to make a complete analysis of every type of cloth that can be secured. In this way an ambitious person will secure a wide and varied knowledge of the weaves, counts and types of yarns, and constructions used in an equally wide and varied class of fabrics. It is of the utmost importance that the necessary time required to analyze a cloth sample properly be given the work. Faulty or careless work leads one nowhere, and seldom does one any good. It is an excellent idea to carefully record the weave, drafts, and particulars of each sample, as it is analyzed, in a permanent form. A form providing space for these particulars is given further on in the text.

Preliminaries.

When given a cloth sample to analyze, the first point is to distinguish between the face and the back of the fabric. With most cotton cloths this a simple matter, as the face shows the pattern clearer and better than the back. However, there are some fabrics that vex the most experienced, and there are many fabrics such as warp-face sateens, filling-face sateens, corduroys, piques, bedford cords, and backed fabrics in which the face is apparent at first sight. Practice, alone, soon sets one right in this matter.

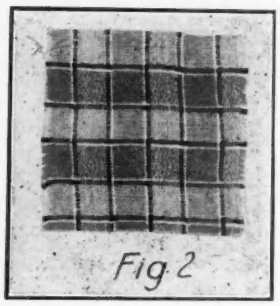


Fig 2

Another point is that of distinguishing between the warp and filling. The first thing to look for in the cloth is reed marks, made by the steel splits in the reed being bent out of place, crowding some of the ends together and leaving a space between others. These reed marks always run in the direction of the warp. If the reed marks do not show prominently, which is usually the case in well finished fabrics, the cloth sample should be held up to the light. It will be seen that the warp ends lie straight in the cloth, owing to the fact that the warp is under great tension during weaving, while the filling, it will be noted, has a wavy appearance, as there is practically no tension on it during weaving. In case the fabric has a striped pattern, the stripes always run in the direction of the warp; while if the fabric contains a gingham pattern, the checks do not form perfect squares but are slightly elongated in the direction of the warp. The latter effect is illustrated in Fig. 2.

Warp Pattern.

When the fabric contains warp yarns of different counts, materials, or colors, it is necessary to make out a warp pattern. This is accomplished by taking one repeat of the warp pattern and indicating on paper the manner in which the colors are arranged in the cloth, according to the number of ends of each count, material, or color. For example, in a gingham woven with 40s warp, the colors are arranged: 22 ends of white, 8 ends of slate, 22 ends of white, 8 ends of red, 22 ends of white, 8 ends of tan, 22 ends of white, and 8 ends of green. The proper method of showing this warp pattern on paper is as follows:

White	22	22	22	22	=	88 ends
Slate	8				=	8 ends
Red		8			=	8 ends
Tan			8		=	8 ends
Green				8	=	8 ends

Total ends in pattern ..... = 120

Filling Pattern.

The filling pattern is shown on paper in the same manner as the warp pattern, viz., according to the number of picks of each count, material, or color.

Dissecting the Weave.

Dissecting the weave is one of the most important duties connected with the analysis of a fabric, and it requires a great deal of practice and study in order to obtain the correct weave, in the case of a fancy pattern. After one has become proficient in this, it takes but a view or two of the fabric with a pick glass to determine the weave. The weave, when placed on design paper, indicates the manner of interlacing the warp and filling to form the fabric. In this connection it is assumed that the reader is acquainted with the ordinary methods employed to designate the weave on design paper, i.e., that filled-in squares indicate warp raised over filling and that squares left blank indicate filling floating over warp. To dissect a cloth sample one should be provided with a dissecting needle. A sketch of a needle of this type is shown in Fig. 3, consisting of an

ordinary sewing needle with its eye-end sunk into a wooden handle, the handle being about one-half inch in diameter and three inches long.

There are several methods of dissecting a weave in common use among designers, but as they are essentially synonymous one method will be used here as an example for the

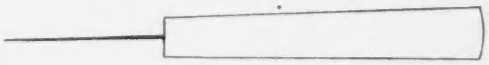


Fig 3

reader to go by in dissecting any cloth sample he may encounter. This method consists of picking out one warp end at the time and indicating on design paper the picks which it floats over.

Before starting to dissect the weave several warp ends should be removed from the left-hand side of the sample. A view of the sample used for illustration is given in Fig. 4, showing ten or a dozen warp ends removed from the left-hand side. The sample is next taken between the thumb and first finger of the left hand with the left-hand edge farthest away from the body. Then, taking the dissecting needle in the right hand, push the first end a short ways from the body of the sample, and, starting with the first pick, notice whether the first warp end is over or under the first pick. If it is over, a mark should be placed in the lower left-hand corner of the design paper, corresponding to the point where the first end and the first pick of the

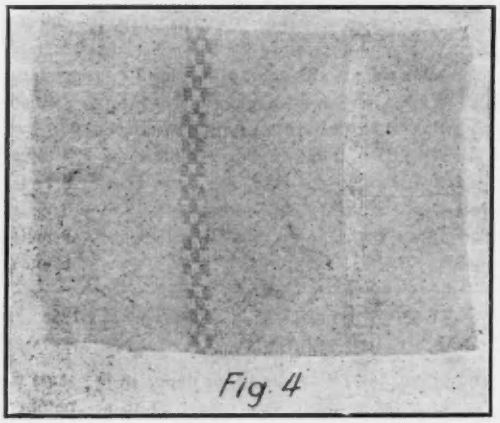


Fig. 4

sample interlace. In case the warp end is under the pick of filling the square on the design paper is left blank. When dissecting a weave, it is a good plan to prick the square on the design paper with the dissecting needle when it is desired to indicate a warp end raised, and then fill in the squares so marked after the weave has been completely dissected. In this way much time is saved, as one does not have to lay down the dissecting needle and pick up a pen or a brush. The interlacings of the first end are then followed through in the sample and indicated on design paper in the same manner as on the first pick. After the interlacings of the first end have been indicated on design paper this end is removed from the sample and the second end is pushed a short ways from the body of the cloth. Proceed with this end as with the first, and so on with the remaining ends until one repeat of the weave has been dissected. It is sometimes advisable to carry out the dissecting to two repeats in order to be sure that one complete repeat has been found.

The dissecting of a sample can be started on any end and yet the result will differ from the result obtained by starting on another end. Fig. 5 (a) and (b), which are the weaves obtained by dissecting the sample shown in Fig. 4, illustrate this point. In both cases the weave is the same and each is correct, the difference being that the dissecting was started on different ends in each case.

The Harness Draft.

The harness draft is taken from the weave, and when obtaining this it is well to arrange the draft with due regard to the weaving of the fabric. In the case of two distinct weaves in one pattern it is best to draw the weave having the greatest number of ends on the front harnesses. The advantage is two-fold. For example, take the case of combining a twill weave with a plain weave. As there are more ends of the plain than of the twill, more ends of the plain are liable to break when weaving and it is easier to draw a broken end through a front harness than through a back harness. Also, the strain on the ends drawn through the front harnesses is less than that on the ends drawn through the back harnesses, and this facilitates the weaving of the fabric.

When making out the harness draft for a weave it should be remembered that a straight draft is best for all weaving purposes, as this eliminates the possibility of error when the weaver is drawing in a broken end. However, there are cases where it is advisable to employ more harnesses than are necessary when weaving high sley goods. For instance, it is a common practice to draw the plain weave on four harnesses when the goods are of a high sley. In this case the ends are drawn-in in a 1, 3, 2, 4 order, as in this way the first and second harnesses work as one as well as the third and fourth harnesses. Fig. 6 shows the harness draft for the weave shown in Fig. 5 (a).

The Chain Draft.

The chain draft is obtained from the weave and the harness draft. There are as many rows of pegs in the chain as there are harnesses employed to weave the fabric, and each row of pegs represents the raising and lowering of its corresponding harness on each pick. In the chain draft, a filled-in square, or a square marked with a cross, indicates the harness raised, while a square left blank indicates the harness lowered. In Fig. 6 the first end is drawn through the first harness, therefore the first end of the weave shown in Fig. 5 (a) shows the manner of raising and lowering the first harness. By referring to the chain draft, Fig. 6 (a), it is shown that in the first vertical row of the chain there is a peg for every filled-in square in the first end of the weave, as indicated by the crosses in the chain draft. The pegging plan for the remaining ends is obtained in the same manner as that of the first end.

Analyzing a Cloth Sample.

In order that the method of analyzing a cloth sample may be made clearer to the reader, a typical cotton fabric is taken as an example and analyzed. The facts and particulars obtained from the analysis are then collected and recorded in the form shown in Fig. 7. The fabric under discussion is a narrow cotton sheeting of the type common

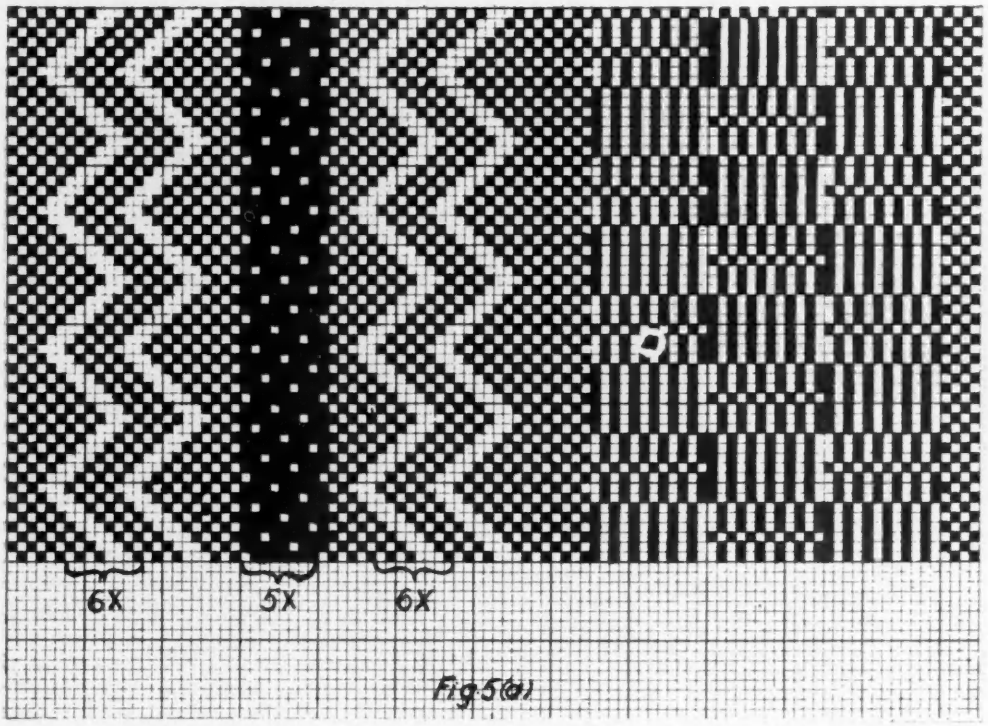


Fig 5(a)

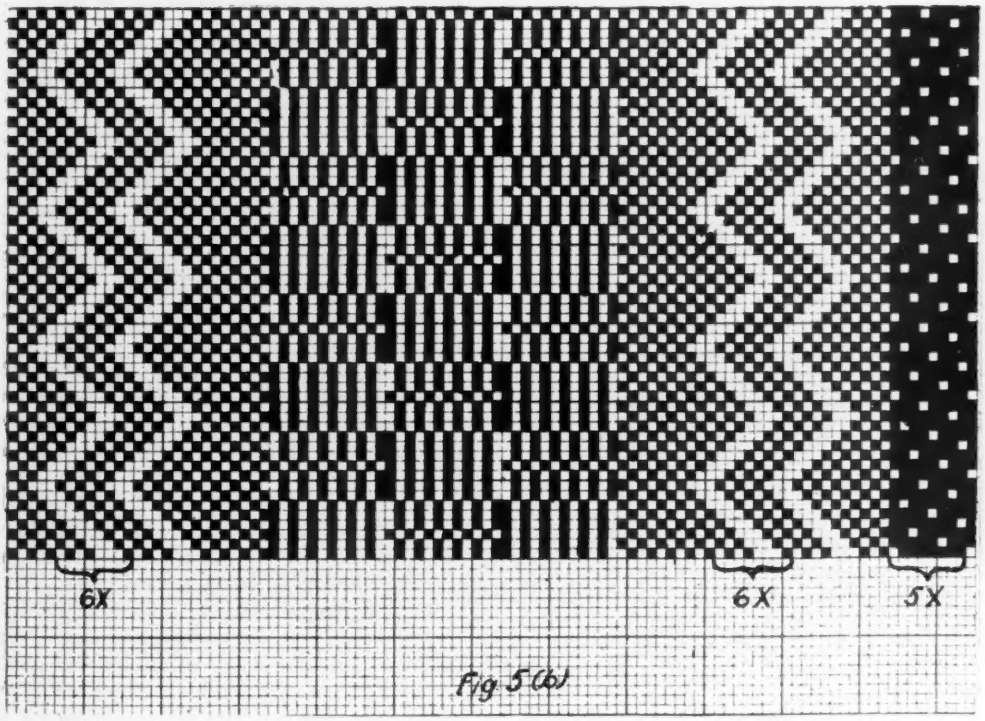


Fig 5(b)

in the converting trade.

The first thing to do is to find the face of the fabric and to distinguish the warp from the filling. These particulars having been determined, the contraction of the warp and of the filling should be found and the percentages recorded on the analysis sheet under the headings "Warp contraction" and "Filling contraction," as shown in Fig. 7. Methods for finding these particulars have previously been given. (See COTTON for February, 1925, page 341.)

Next, a sample of the cloth exactly 1 inch by 1 inch (1 square inch) is cut from the piece with a die. When cutting a sample from the piece with a die, as in this case,

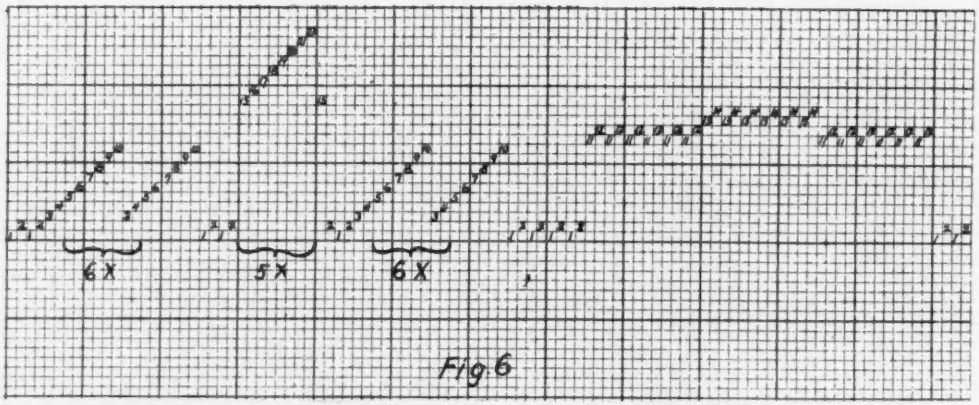


Fig 6

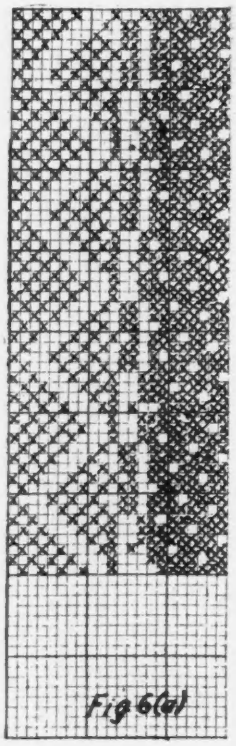


Fig 6(a)

the edges of the die should be parallel to the warp and filling threads. Thus, the warp and filling threads in the sample will be at right angles to the edges of the sample cut, insuring threads of the same length. After cutting, the sample is weighed on an analytical balance, the weight converted into grains and recorded in the space provided on the analysis sheet. Then, remove the warp and fillng from the sample, counting the ends and picks as they are removed and keeping each separate from the other. After the weights of the warp and filling threads contained in the sample have been found they are recorded on the analysis sheet together with the number of ends and picks. The width within selvages is found by measuring with a yard stick, and the width of the selvages (found on each side of the cloth) is taken with a pair of dividers and then measured on a small steel rule. Note that the selvage ends have been counted and recorded with the width of the selvages. Under the heading "Remarks" the manner in which the cloth is reeded is given. In most cotton cloths the warp in the body of the cloth is reeded 2 per dent and that in the selvages 4 per dent. In fancy patterns and in fabrics of special construction this statement does not hold true.

Finding the Requirements.

1. Warp pattern. Under this heading the manner in which the warp is arranged in the cloth according to the number of ends of each color, count, or material is given. As the warp in this fabric is white and of the same material and counts, it is sufficient to simply state "White."

2. Filling pattern. Like the warp, the filling is white and of the same material and counts. Therefore, "White" is all that is necessary to be indicated.

3. Weight of one yard of cloth, including selvages. It was found that one square inch weighs 1.36 grains. As the cloth is 36 inches wide and as there are 36 inches in one yard, the product of the three divided by 437.5 (7,000 ÷ 16) gives the weight in ounces of one yard.

4. Ends in warp. The product of the sley and width plus the number of selvage ends gives the total number of ends in the warp.

5. Patterns in the warp. As the warp is white it is obvious that there are no patterns in the warp.

6. Counts of the warp. The warp ends weighed were taken from a sample of one square inch. Since the number of ends in this sample is 84, this gives 84 inches of warp in the sample. But, to this must be added the percentage of warp contraction, 3.78 inches, which gives 87.78 inches, the total length of warp weighed. Then, using the rule for finding the counts when the length in inches and the weight in grains are given, the counts of warp are found.

7. Counts of filling. The number of picks in this sample is 80, and this gives 80 inches of filling in the cloth. But, after adding the percentage of filling contraction, 14 inches, a total length of 94 inches is the result. The rule used for finding the counts of the filling is the same as the one used for finding the counts of the warp.

8. Weight of warp, including selvages, in one yard of cloth. This requirement is found by using the rule for finding the weight of warp in a piece of cloth when the counts, length of cloth, warp contraction, sley, and width are known; the exception in this case being that the weight is found in ounces by multiplying the terms in the numerator by 16.

9. Weight of filling in one yard of cloth. This requirement is found by using the rule for finding the weight of filling yarn in a piece of cloth when the length, width, filling contraction, pick, and counts are known. Multiply the terms in the numerator by 16 to obtain the weight in ounces.

10. Width at reed, including selvages. The product of the width of the cloth and 100 per cent plus the percentage of filling contraction gives the width at reed.

11. Reed number. The rule given under "Reed Calculations" in "Cotton Cloth Calculations" (see COTTON for February, 1925) is used to find this requirement.

12. Yards per pound. Multiply the number of square inches weighed by 7,000 and divide by the weight in grains times the width, including selvages, times 36.

CLOTH ANALYSIS SHEET.

Fabric COTTON SHEETING Date March 21, 1925
Data: 1 sq. in. = 1.36 grains. Sley: 84 = .68 grains. Pick: 80 = .68 grains.
Width within selvages: 35.5 inches. Add to width for selvages: .5 inch = 48 ends. Warp contraction: 4.5%. Filling contraction: 17.5%
Remarks: Body of cloth reeded 2 per dent.
Selvages reeded 4 per dent.

1. Warp pattern:

White.

2. Filling pattern:

White.

3. Weight of one yard of cloth, including selvages:

$$\frac{36 \times 36 \times 1.36}{437.5} = 4.028 \text{ ounces.}$$

4. Total number of ends in warp:

$84 \times 35.5 = 2982 + 48 = 3030$ ends

5. Patterns in warp:

None.

6. Counts of warp.

$$\frac{87.78 \times 7{,}000}{36 \times .68 \times 840} = 29.881_s$$

7. Counts of filling:

$$\frac{94 \times 7{,}000}{36 \times .68 \times 840} = 31.998_s$$

8. Weight of warp, including selvages, in one yard of cloth

$$\frac{3030 \times 37.62 \times 16}{36 \times 29.881 \times 840} = 2.018 \text{ ounces}$$

9. Weight of filling in one yard of cloth:

$$\frac{80 \times 42.3 \times 16}{31.998 \times 840} = 2.011 \text{ ounces}$$

10. Width at reed, including selvages:

$36 \times 1.175 = 42.3$ inches

11. Reed number:

$2982 \div 2 = 1491$
$48 \div 4 = 12$
$= 1503 \div 42.3 = \#35.531$ reed

12. Yards per pound:

$$\frac{1 \times 7{,}000}{1.36 \times 36 \times 36} = 3.971 \text{ yards.}$$

Weave, Harness and Chain Drafts shown on design paper.

FIG. 7

N. B.—As a check, or proof, of the analysis the sum of the results found in requirements 8 and 9 should compare favorably with the result found in requirement 3.

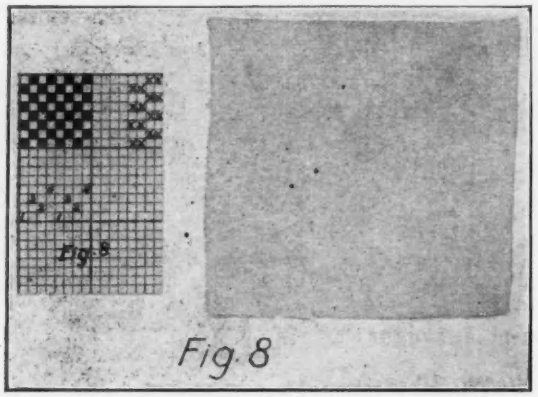
Weave, Harness and Chain Drafts.

A glance at the fabric shows that it is woven with the plain weave. This fabric can be woven on two shades of harnesses, but, on account of the relatively high sley, the author recommends using four shades. Consequently, there will be four vertical rows of pegs in the chain. Fig. 8 shows the weave, harness and chain drafts, and a view of

the fabric analyzed.

Use of Constants in Cloth Analysis.

The use of constants in cloth analysis saves a great deal of time and, as there are fewer terms to contend with, the liability of error in solving an equation is greatly lessened. However, it is practically impossible to derive constants for all the equations entering into the analysis of a cloth



sample, as the terms in many of them differ in the analysis of different fabrics. Yet, with particular reference to the analysis method given here, it is apparent that constants derived from some of the equations prove practical when carried into every day use. In view of this fact, the author presents the constants for the equations given herewith, showing the equation from which they are derived, how they are derived, and their use in practice.

The equations are taken from the answers to certain of the requirements shown on the cloth analysis sheet in Fig. 7, and the constants derived may be used in these equations in the analysis of any cloth sample. Only those equations where it is practical to derive a constant are considered.

3. Weight of one yard of cloth, including selvages: The equation is—

$$\frac{36 \times \text{width in inches} \times \text{weight in grains}}{437.5} = \text{weight in ounces.}$$

As 36 always appears in the numerator and 437.5 in the denominator, 36 is divided by 737.5 and the constant .08228 is the result. Then, substituting this constant in the equation we have:

.08228 × width in inches × weight in grains = weight in ounces.

$$\textit{Example:}\quad \frac{36 \times 36 \times 1.36}{437.5} = 4.028 \text{ ounces.}$$

Using the constant: $.08228 \times 36 \times 1.36 = 4.028$ ounces.

6. Counts of warp: The equation is:

$$\frac{\text{length in inches} \times 7{,}000}{36 \times \text{weight in grains} \times 840} = \text{counts.}$$

Note that 7,000 always appears in the numerator and 36 × 840 in the denominator. If 7,000 is divided by the product of 36 and 840 the constant .2315 is obtained. Then, substituting this constant in the equation we have:

$$\frac{.2315 \times \text{length in inches}}{\text{Weight in grains}} = \text{counts.}$$

$$\textit{Example:}\quad \frac{87.78 \times 7{,}000}{36 \times .68 \times 840} = 29.881\text{s}$$

Using the constant: $\dfrac{.2315 \times 87.78}{.68} = 29.881\text{s.}$

7. Counts of filling:

The constant for this equation is the same as the one used in finding the counts of the warp, .2315, and it is substituted in the same way.

$$\textit{Example:}\quad \frac{94 \times 7{,}000}{36 \times .68 \times 840} = 31.998\text{s.}$$

Using the constant:

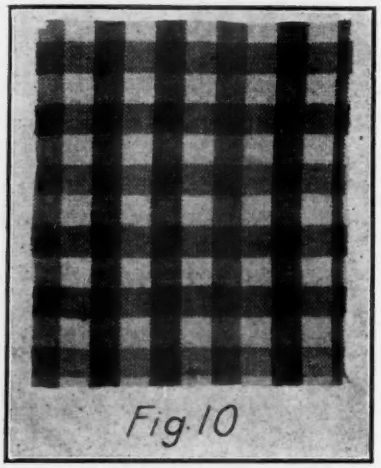
$$\frac{.2315 \times 94}{.68} = 31.998\text{s (32s practically).}$$

These constants constitute the ones usually employed in the analysis of a cotton cloth sample. It is not denied that constants could be used for other equations on the analysis sheet, namely requirements 8, 9 and 12, but their use has proved to be impractical so far as saving time and reducing the liability of error are concerned.

Analyzing a Gingham.

The analysis of the gingham is offered to illustrate some points not taken up in the analysis of the sheeting. Constants are also used wherever possible to shorten and simplify the work.

It is apparent at first sight that the counts of the different colored yarns in the warp and that the counts of the



different colored yarns in the filling are the same. Therefore, it is not necessary to weigh the threads of each color of yarn separately in order to obtain their counts. Neither is it necessary to cut a sample of more than one square inch in order to obtain a basic weight. Instead, the analysis is started and worked out the same as the analysis of the sheeting. If there were cords or twist in either the warp or filling of this fabric, each would have to be weighed and considered separately and a sample containing two square inches would have to be cut from the piece. However, it is important that the warp and filling patterns be determined and the results indicated on the analysis sheet, as shown in Fig. 9.

CLOTH ANALYSIS SHEET.

Fabric GINGHAM Date March 21, 1925

Data: 1 sq.in. = 1.1 grains. Sley: 72 = .59 grains. Pick: 68 = .51 grains
Width within selvages: 32 inches. Add to width for selvages: .5 inch = 48 ends. Warp contraction: 5%. Filling contraction: 8.5%.
Remarks: Body of cloth reeded 2 per dent.
Selvages reeded 4 per dent.

1. Warp pattern:

Blue 16 16 = 32
White 16 16 16 = 48 } = 96 ends in a pattern.
Yellow 16 = 16

2. Filling pattern:

Blue 14 14 = 28
White 14 14 14 = 42 } = 84 picks in a pattern.
Yellow 14 = 14

3. Weight of one yard of cloth, including selvages:

$.08228 \times 32.5 \times 1.1 = 2.942$ ounces.

4. Total number of ends in warp:

$72 \times 32 = 2304 + 48 = 2352$ ends.

5. Patterns in warp:

$2304 \div 96 = 24$ patterns.

6. Counts of warp:

$$\frac{2315 \times 75.6}{.59} = 29.662_s$$

7. Counts of filling:

$$\frac{2315 \times 73.78}{.51} = 33.49_s$$

8. Weight of warp, including selvages, in one yard of cloth:

$$\frac{2352 \times 37.8 \times 16}{36 \times 29.662 \times 840} = 1.585 \text{ ounces.}$$

9. Weight of filling in one yard of cloth:

$$\frac{68 \times 35.252 \times 16}{33.49 \times 840} = 1.363 \text{ ounces}$$

10. Width at reed, including selvages:

$32.5 \times 1.085 = 35.252$ inches.

11. Reed number:

$2304 \div 2 = 1152$
$48 \div 4 = 12$ } $= 1164 \div 35.252 = \#33.019$ reed

12. Yards per pound:

$$\frac{1 \times 7{,}000}{11 \times 36 \times 32.5} = 5.439 \text{ yards.}$$

Weave, Harness and Chain Drafts shown on design paper.

FIG. 9

If the reader understands the analysis of the sheeting and the use of constants in analyzing a fabric, he should not experience any difficulty in understanding the analysis of the gingham. The weave, harness and chain drafts shown in Fig. 8 apply to the gingham, while an illustration of the fabric is given in Fig. 10.

Southern Textile Exposition, Nov. 1st to 6th, 1925.

Scientific Trends with a Textile Slant

Stock per Weight.

The yardage of cotton yarn, in standard counts, increases uniformly with the count, so that the fine or large-numbered counts represent the greatest yardage per weight. One significance of this is that expansion or diminution of cloth weights is an easily-figured function of the count. Figure A.

Since cotton is a constant fiber throughout its processing, in spite of the effect of moisture upon it, and does not bear an alteration, like silk and wool, that affects this ratio of size to yardage in certain counts, there is another

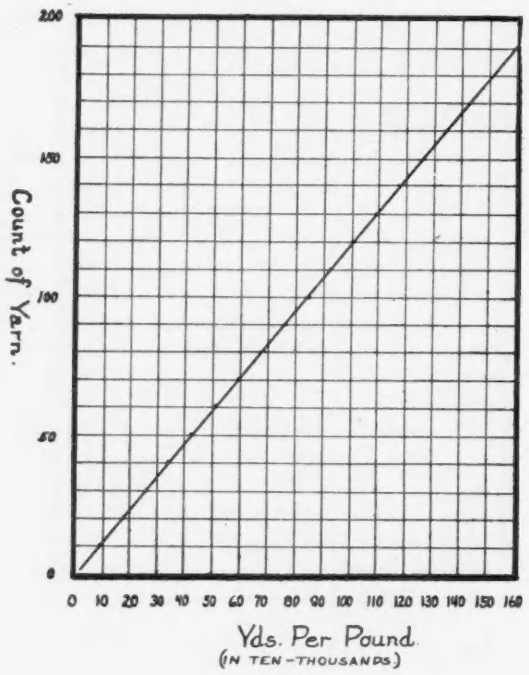


Figure A.

significance to the matter. Processing conditions (viz., quantities, variations and treatments) can be planned easily upon the basis of this uniform ratio of size and length. Furthermore, it simplifies, to the ultimate the control of novelty and mixed fabrics, since the ability to predict effects of process treatment upon the cotton portion is upon the actual yardage of cotton in the fabric.

Strength per Size of Count. (Fig. B.)

Combed and carded cotton varies in strength with the size of fiber, in similar fashion, of course. Starting with the strength advantage on the side of the combed yarn, it approaches a state of approximately equal strength with the finer counts. Of course this means that decision as to which type of operation is of chief advantage must rest, in the finer counts, with the effect either produces upon the thread, in finish and in other qualities outside of combing and carding. This fact suggests opportunities to save manufacturing costs, in certain cloths, or at least to study the possibilities of such saving where allowable.

The early stages of all textile manufacturing are filled with detail, custom, and tradition. Is it not possible that study of such items and relations as this between combed and carded yarn strengths may make for the profitable combination of some, and of the elimination, at least in certain cloths, of others? Even if this policy alter present types of machines it would be worth the effort if it would materially cut the cost of manufacturing.

Next in importance to the materials which enter into the construction of plant and productive machinery are the elementary raw materials of fiber which make the cloth, itself. But, whereas the ordinary properties of these are common knowledge, the significance of one compared with all the others may be overlooked.

Diversification in style, exceptional quality in product, and the ingenuity in design which makes and holds dominance in sharply competitive markets depends, first of all, upon exact and comparative information about the fiber. With this completely in hand the range is considerably widened for new creations, and for improvement and reduction of manufacturing cost upon the old standard ones.

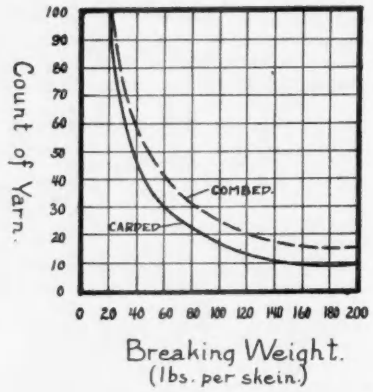


Figure B.

Fiber Properties and Machine Development.

It is a curious thing that the modern period of textile manufacturing history is singularly lacking in outstanding invention. Ingenious devices and detailed improvements there are, in plenty, but eventful principles, comparable with the principle of mercerizing, the cotton gin, and the jacquard loom there are not. Perhaps this condition is the outcome of too close an application to machine detail, rather than the study of principle and property.

We are, perhaps, justified in basing all modern constructive effort upon scientific principles, because of the secure foundation this provides for later development. Therefore, it seems logical to suppose that modern effort, productive of such far-reaching accomplishments as these earlier famous ones, must come about through study of the very little things, in principle and method. As these are studied and delved into more and more deeply the effective combinations and principles will be reached.

Adjustment of Weight, Length and Size. (Fig. C.)

The various common textile fibers differ widely in their yardage per pound. We are apt to stop, with this comparison without appreciating the reverse consideration, viz., of length per given weight.

The problem of mill remnants and the scheduling of requirements of various stocks and colors for regulars and specials can be very much perfected by paying more attention to this second ratio. Perhaps the most significant thing about the two ratios is that the order of ascent, from least to greatest quantity, is not that which a casual thought would indicate. This is just as applicable to the

mill man as to the layman. The weight and the length which similar units of the several fibers bear to each other should be instant data in the mind. To know that wool

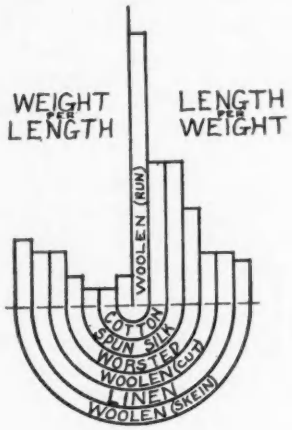


Figure C.

yarn has the greatest length per pound of these fibers, in a given size, and that cotton and spun silk hold, equally, the low place in weight per yardage, are bases of many valuable decisions affecting textile fabrics.

Processing Effects—Moisture Regain. (Fig. D.)

The ability of cotton to take on moisture is a phenomenon the *characteristic nature* of which is independent of the temperature of the operation. The regain varies, of course, with the temperature, increasing with the decrease in temperature.

One significant feature of this is consideration of the extent to which a plant may be justified in going to maintain lower temperatures for conditioning, in view of the relatively slight advantage between a high and a low

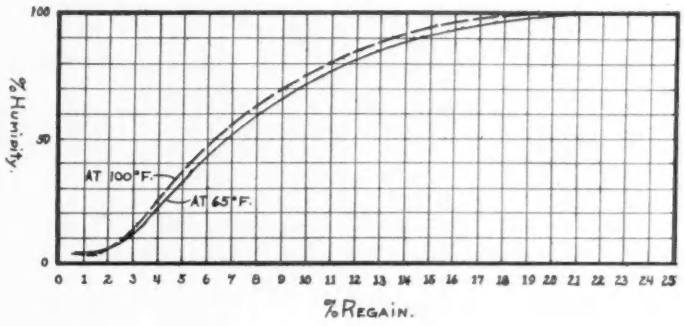


Figure D.

temperature and the investment cost of apparatus to achieve the ideal. Cotton manufacturing is on too close a margin to take on every luxury of ideal conditions unless it can show a rapid tendency to help in the budget of expense.

Perhaps this would be an ideal field for chemical research, toward the discovery of a *chemical* or other synthetic substitute for low conditioning temperature.

Southern Textile Association

The Asheville convention of the Southern Textile Association was arranged to be a red letter occasion, and the event beyond doubt fulfilled all plans for its success. The meeting was held at the Kenilworth Inn, on Friday and Saturday, June 19th and 20th.

In the first place, the program was prepared to have present representatives from the several associations of southern mill financial executives, who brought greetings of their fellow executives, and through brief talks gave inspiration to the operating men who compose the Southern Textile Association in their efforts toward serving the industry.

Secondly, the attendance was much better than had been anticipated by the most sanguine of those connected with the arrangements, as the meeting drew a large number of delegates from practically every southern textile state. The selection of the Inn as the meeting place was unanimously approved, the Association having been there two years previously, and the wonderful scenery of its location and excellent service from the hotel added much to the enjoyment of the occasion. Finally, and very important, Southern Textile meetings are becoming more and more effective and helpful as each convention comes round, and this meeting added one more definite mark of progress.

In the election of officers, Oscar D. Grimes, vice-president and general manager of the Athens (Ga.) Manufacturing Company, was made president; William H. Gibson, until recently superintendent of the Union-Buffalo Mills Company, Union, S. C., was elected vice-president; L. R. Gilbert, superintendent, Caraleigh Mills Co., Raleigh, N. C., was elected chairman of the board of governors, and the following new members added to the board for three year terms: Carl R. Harris, assistant superintendent, Inman (S. C.) Mills, and chairman of the spinning division; William W. Arnold, Jr., general superintendent, Hillside Cotton Mills, Unity Cotton Mills, Unity Spinning Mills, LaGrange, Ga., Milstead (Ga.) Manufacturing Co., and Manchester (Ga.) Cotton Mills, and general chairman, Textile Operating Executives of Georgia; and Frank K. Petree superintendent, Swift Manufacturing Company, Columbus, Ga. J. O. Edwards, superintendent, Icemorlee Mills, Inc., Monroe, N. C., was re-elected.

F. Gordon Cobb, general manager, Lancaster (S. C.) Cotton Mills, a former president of the Association, and the originator of the discussion meetings, was elected secretary-treasurer of the Association. As secretary, he succeeds A. B. Carter, resigned, and as treasurer, T. A. Sizemore, superintendent, American Spinning Company, Greenville, S. C., who moved that the offices be consolidated.

Columbus Ga., was selected as the place for the Fall meeting of the Association, the time of which will be established later by the officers.

The morning session was opened on Friday morning, June 19th, with the invocation, by Frank K. Petrea, following which Marshall Dilling, superintendent, A. M. Smyre Manufacturing Co., Gastonia, N. C., president of the Association, presented the annual address of the president.

President Dilling's Address.

Mr. Dilling said in part:

"As we take a retrospective view of ourselves we can always remember the unpleasant things that we have been through but in the course of time we should forget those things and attempt to see only the best there is in life and the things that have been uplifting for ourselves and our fellow men and I hope that such will be the case with the members of this Association. The greatest pleasure that has come to me during the past year and which I expect to always remember with satisfaction, has been the opportunity of trying to serve the members of this Association and in doing what I could in my humble way to advance the interest of the Association and the Industry that we represent and to bring about a better feeling of friendship and cooperation among the representatives of our industry and if possible to put it on a higher plane, so that our standards will be of the highest order. If I have been able to accomplish anything along this line, I shall feel that my efforts have been worth while and I am very grateful for the privilege that has come to me in being honored with the highest office in your gift.

"Many of the members of this Association have seen the great textile industry of the South grow from a very small industry, thirty years ago up to the present time, when we are the representatives of more than 15 million spindles which now consume more than half of the cotton consumed in the United States. While we have witnessed this phenomenal growth in spindles and capital invested, we have also witnessed a more marvelous growth in the ability of our citizenship to adapt itself to the new industrial conditions and to meet them so successfully. In one generation we have advanced from manufacturers of the coarsest and lowest grades of cotton goods to the successful production of the world's finest fabrics. We can boast of the great advantages with which nature has so abundantly blessed us but the real reason for our success is in the personnel of our industry. I do not recall that history has recorded the story of a people that has changed from an agricultural class to an industrial people in one generation and in that brief time been able to stand with any people or country in its ability to produce the highest quality goods that can be manufactured. Such is the story in brief of the textile industry in the South. I am of the opinion that now would be a very appropriate time for some historian to begin writing the story of this marvelous advancement, so that it may be handed down to the coming generations in such form and compiled from such authentic sources that its accuracy could not be questioned, because the story is so marvelous that unless it is compiled in such a manner it will meet with criticism and many will not be willing to believe the wonderful story.

"While we can look into the past with satisfaction at what we have accomplished, I think that we as representative men of the great textile industry of the South should set our eyes to the future and continue to develop on the foundations that have been established, so that we will continue to be an industry that will be truly representative of our great Southland, to its history and its tradition. While we marvel at what we have done, we doubt not that the future has much more in store than the past has given us and the task is to continue to go forward to develop our business and our country and to continue to give it all the good things that have come to the South as a result of the development of the textile industry.

"During the past year I have seen evidences of a better spirit of cooperation and understanding in our industry and as a result we are enjoying a period of harmony and good will and let us hope this feeling will continue to improve to the end, that the seed of discontent can not be sown again and that we can continue to enjoy the benefits that will come to our people while this condition continues and improves.

"Since the close of the great world war, our business, like all other businesses, has gone through a period of re-adjustment and sometimes we think it has effected the textile industry more than anything else and during the past year we have gone through this fluctuation in business from a depression unprecedented in our history during the summer of 1924 to a period of reasonably good business in the winter of 1924-25, back to another depression at the present time, which we hope will be very brief and will be followed by a period of business that will allow us at least to be able to operate our plants full time. As a result of these conditions we are experiencing, we are being put to the test and I doubt not that we are coming out of it stronger and better prepared to continue the development of our industry on a sounder and more efficient basis than ever before. Let us hope that we will soon return to normalcy and that these marked fluctuations in business are in the past and that we can carry on under more stable and uniform conditions.

"These conditions have brought us more and more to realize the need of closer coordination between the three phases of our business, the buying of the raw material, the manufacturing of the goods and the selling of the finished product, than we have been able to see the need of heretofore. We have observed instances in the South of mills that have been wonderfully successful, because of their ability to buy the raw material right and without much regard for the other phases of the business, and we have also seen instances in which other mills were successful because of their ability to manufacture or to sell correctly, but the conditions are such now and will be in the future that the most successful mills are those who give equal consideration to every phase of the business and to see that each is carried on efficiently and economically. As we are interested especially in the manufacturing of the goods we should be more vitally interested than ever before in knowing how to operate our mills more efficiently and economically, at the same time to continue to improve the quality as we have been doing in the past, so that we will be able to meet the ever-increasing demand for finer and higher grade of goods. As we have reached the forefront in our ability to meet these demands let us continue to improve our methods and policies until we shall have indisputable claim as the world's greatest manufacturing center of cotton goods.

"It has been my purpose during the past year as President of your Association to continue its educational work that has been carried on for several years in the interchange of ideas for the improvements of our processes of manufacturing, equipment and methods of carrying on our business. The conditions which we are passing through demand that we produce our goods more economically than we have been able to do in times past and I feel sure that during the year this idea has been impressed upon the

members of the Association and that results have been accomplished in operating our plants more economically and effectively in ways other than reducing the wages of our employees and that through these improved methods many of our employees are enjoying a higher wage scale than at any time in the past. It is my opinion that much more can be accomplished along this line through the sectional meetings of our Association and through the textile papers that are cooperating so splendidly with our Association in carrying out its educational program.

"The textile industry of the South has been the target for every kind of demagogue that the country has produced and this condition reached its climax during the past year when the 20th Amendment to the Constitution of the United States was submitted to the several states for ratification. It is doubted if there has been at any time a more dangerous or insidious piece of legislation submitted to our country than this amendment which not only affects every phase of our business, social, and economic life but strikes at the very root of our country's greatest asset, the home. We are to be congratulated that the country was able to see the danger in such legislation and has overwhelmingly defeated it. We should not rest on our laurels because of this victory, however, for it is only a question of time until this

Oscar D. Grimes, President-Elect.

or some similar legislation will be proposed in a different form and the safety of our country rests in our ability to be able to protect our time honored institutions and to distinguish the good from the bad and as free American citizens use what influence we have for what is best for our country.

"During the past year our Association has continued its work without any new outstanding features but we hope that a great deal of good has been accomplished in the work of our sectional meetings along the line of educating ourselves to the best and most improved methods of manufacturing and to carry it on more economically, and it is gratifying to your president to find such interest in the work of the Association. The regular meetings of our sections have been held during the year with splendid attendance and interest and I believe that great good has resulted from these meetings. Too much credit can not be given to the chairmen of these various sections for the

Marshall Dilling, President.

splendid work that they have accomplished. This has been the outstanding work of our Association for several years and I know of nothing else that could have accomplished more than has been or can be accomplished by continuing this work.

"You will notice from these remarks that the words efficiency and economy have received a great deal of attention. The conditions through which we are passing have caused us to see these needs more forcibly than ever before and in order to overcome the spirit of carelessness, inefficiency and extravagance that was so prevalent during and after the world war it is necessary that we study, develop and practice the most efficient methods and practices so that we can operate our mills more economically. My observation is that we have a few mills in the South yet who have not learned these virtues and unless they are aroused to the necessities of the times it is only a question of time until they will be out of the running.

"The Southern Textile Association has been for years a live and working organization that has accomplished great things for the textile industry and is today more firmly established and is wielding a greater influence and accomplishing more practical results in educating its members in efficient and economical methods than any other organization. The future of our Association is very promising and we have a wonderful field in which to work. While we have accomplished much it is insignificant compared with what can be done in the future along educational lines, research

work, and creating a better spirit of cooperation and mutual helpfulness. My final word is a plea for the continuance of the great work that we have been doing until we shall have reached that higher and broader field of usefulness and efficiency that will enable us to give to the world that full measure of service that we feel is our greatest privilege."

After Mr. Dilling's address, the reports of the three discussion division chairmen were heard. J. O. Corn, chairman of the carding division, reported on the meeting held at Greenwood, S. C., on December 14th. A complete report of this discussion can be found in the January, 1925, issue of COTTON. Carl R. Harris, chairman of the spinning division, reported on the March 13th meeting at Charlotte, N. C., which was reported in full in the April, 1925, number of COTTON. During his report, Chairman Harris presented a display of bobbins, submitted by a number of mills, which are being successfully used for filling wind on warp. The following information was given with each bobbin: Number of yarn; carded or combed, r.p.m. of spindle; twist multiplier used; length of stroke; size of ring and flange; band or tape drive; grade and staple of cotton; hank roving for spinning; r.p.m. of front roll; length of traverse; gauge of frame; and whether separators were used. The bobbins indicated a wide difference in the style used at various mills for this purpose, and was the object of much interest. Chairman L. L. Brown, of the weaving division, next reported on the meeting of that division at Anderson, S. C., on April 15th, which was reported in the May, 1925, issue of COTTON.

Addresses of Mill Presidents.

The next and concluding feature of the morning session consisted of short messages from prominent mill executives, representing the financial executive associations. The purpose of this was to create a closer contact and interest between the two branches of executives. The first of these speakers, introduced by A. B. Carter, secretary of the Association, was Captain Ellison A. Smyth, of Flat Rock, N. C. Captain Smyth, who is the Dean of the southern textile industry, is president of the Balfour (N. C.) Mills. He is a former president of the American Cotton Manufacturers' Association, and of the Cotton Manufacturers' Association of South Carolina, and he represented President J. C. Evins, of the latter organization, at the Asheville meeting.

Captain Smyth brought greetings from the South Carolina association, as well as their felicitations upon the work being done by the Southern Textile Association. He pointed out that within the past ten years, wonderful strides have been made in the Association, particularly through the operation of the group meetings. He gave it as his opinion that no better service could be rendered by the Association than the continuance and development of these discussions. Quoting Socrates, that "I am a part of all with whom I come in contact," Captain Smyth encouraged the development of social intercourse as well as that of a business nature, that the influence of each member might help the other man. He laid upon the minds of the operating executives the responsibilities of their positions at their own mills as to leadership and example.

The next speaker, George S. Harris, was introduced by Oscar D. Grimes. Mr. Harris, president of the Exposition Cotton Mills, Atlanta, Ga., represented the Cotton Manufacturers' Association of Georgia, of which he was recently re-elected president. Mr. Harris congratulated the Association on the practical application which it is making of the Golden Rule in industry. Having been a member of the Association during the time he was an operating executive, he said he naturally was gratified at the progress made. He urged the men to support and cooperate with the Association in its work. Mr. Harris commended the textile press for furnishing complete reports of the discussions, which afforded those not in attendance to keep posted on current ideas.

Having been formerly an overseer and a superintendent, Mr. Harris, appreciating the viewpoint of these positions, urged complete cooperation with the superior officers in the mills, stressing the fact that complete coordination of effort is necessary for successful results. He referred briefly to the present condition of the industry, and urged the men, in their positions, to practice efficiency and produce quality.

President Dilling next read a telegram from E. C. Dwelle, vice-president, Chadwick-Hoskins Company, and president of the Cotton Manufacturers' Association of North Carolina, who was unable to attend. Mr. Dwelle extended the congratulations of his Association, and pledged its support in connection with the educational work being conducted by the Southern Textile Association.

This concluded the session, and the members were turned loose during the afternoon. A golf tournament was conducted and participated in by a number of the men; others preferred to sit around the hotel and talk.

Annual Banquet.

At 7:30 o'clock on Friday evening, the annual banquet of the Association was held. The first feature was the perpetration of some so-called music by the "Southern Textile Association Orchestra." This aggregation, consisting of Robert W. Philip, associate editor of COTTON, Atlanta; Marion T. Grimes, superintendent, Gluck Mills, Anderson, S. C.; H. E. Runge, Draper Corporation, Atlanta, and R. M. Matthews, superintendent, Peerless Cotton Mills, Thomaston, Ga., coaxed some so-called instruments into some so-called music much to the anguish and suffering of the patient auditors. The fortitude and forbearance and ability to suffer evidenced by the crowd, as no fatalities were reported as a result of this ordeal, demonstrated why the southern textile industry has so well passed through the recent business depression. That "music" was an acid test on a man's strength.

Following the entertainment, the toastmaster, Mr. Dilling, called upon Mr. Philip to present the first speaker of the evening, who was William J. Vereen, vice-president, Moultrie (Ga.) Cotton Mills, president, Poulan (Ga.) Cotton Mills, and president of the American Cotton Manufacturers' Association, who attended the meeting as representative of this, the largest body of southern mill executives. Mr. Vereen spoke briefly, assuring the men that his Association thoroughly believes in and encourages their work, and proffering the fullest measure of cooperation during his term of office.

The concluding feature was a humorous address by Dr A. C. Chappell, of Asheville, N. C., whose remarks were most entertaining.

The Saturday morning session was opened by President Dilling at 9:30 o'clock. The first feature was an address by Marion W. Heiss, assistant superintendent, Rev-

olution Cotton Mills, Greensboro, N. C., and immediate past president of the Southern Textile Social Service Association. Mr. Heiss spoke in part as follows, his subject being

The Mill Village Complex.

"You as captains and lieutenants of the industry are far more familiar with the detailed workings of your respective plants and departments than I could possibly be. You also figure largely in your communities, exercising more influence than you yourselves are conscious of. Some of you, no doubt, are students of conditions surrounding the textile industry as a whole and are conscious of the appearance and significance of new elements as they actually become contributing factors in the industry.

"However, I do not believe you, as a whole, have considered seriously certain tendencies which have been manifest for many years and have only lately assumed such proportions that their present indications of future effectiveness demand careful attention.

"Through association and an intimate connection with the Southern Textile Social Service Association, unusual opportunities have been afforded me to get a slant of what our sociological friends term the 'Mill Village Complex.' I do not know exactly what complex is supposed to mean, but after reading many articles and hearing several speeches, I am led to believe it has something to do with the insatiable desire of certain uninformed uplifters to raise a mythical oppression from the heads of the thousands of southern textile workers.

"You, no doubt, are familiar with some of the sensational articles which have appeared in many of our popular periodicals. Frank Tannenbaum's 'The South Buries Its Anglo-Saxons' in the Century Magazine, June, 1923, conveyed the greatest amount of venom. Good Housekeeping and other periodicals have followed closely with similar expositions.

"The past policy, generally accepted, has been to ignore such outbursts. In other words, 'Do not bite the dog.' 'Tis true as far as it goes, but, my friends, if a dog is mad, let's prevent him from passing his madness on to others; let's use a neutralizing hypodermic, correct and control the disease. It has been said that our nominal uplifters have built their complexes upon a foundation of truths, half truths and lies. Unfortunately there are many truths about us, of which we are not proud, and which offer just grounds for criticism. These coupled with untruths make good reading matter for a sensation loving public. One of our ancient seers has said, 'There are three kinds of lies; plain lies, damn lies and statistics.' The more I think of the statement the more significance I see in the climatic arrangement. First, the 'Plain lie,' which unconsciously carries exaggeration, an inherent trait we all more or less possess; the 'Damn lie,' a malicious misrepresentation for ulterior purposes, and the most dangerous of all, the 'Statistics.' The 'plain lie,' we discount. The 'damn lie' is generally proved wrong in its incipiency. But the 'statistics' furnish the real live bait with which the fish are caught.

"Our moral and industrial reformers dote on their carefully prepared statistic book, a more formidable possession than Tannenbaum's hallucination, the 'Doomsday book' with which, we are told, we outline the destinies of our 'oppressed mill people.' Anna Howard Shaw once told a story of how, through shrewd compilation of statistics, she proved a certain issue governing the policies of a town, and after a lapse of a few years, found it necessary to take the opposite side of the same issue, and by statistics conclusively carried her point.

"So it is with the usual investigator and uplifter sent out by organizations, institutions and publishers. With pencil and paper, and a definite purpose, they enter the 'Feudal reservation of the heartless mill owner' to collect statistics and write the story from first hand information. They are fully aware of the necessity of compiling and re-

William H. Gibson, Elected Vice-President.

lating of those conditions depicting the need of a great reformation. Even more essential is it to his work than the paper he writes on, for a substitute might be found for the paper, while many instances can be cited of articles having been abandoned or refused because the adverse pictures were not painted. One prominent publisher refused a certain article on the grounds that it was 'Too superlative' and appeared too much like the defense of a retained lawyer, yet only a few months previous a most superlative and extremely antagonistic article, teeming with maliciousness and biased criticism, appeared between the covers of his periodical.

"It is far from my desire to leave with you the impression that all of our investigators, uplifters and critics are hostile. There are some possessing the 'best of intentions and a sincere desire to find out the truth, but in absence of the least familiarity with local conditions, they have insensibly slipped into error—honest error, no doubt, but none the less damaging to the South,' and for which we ourselves are greatly responsible. We have passively discussed and probably cussed the various criticisms and have allowed them to pass from our minds, feeling that any further attention would suffice nothing. Many feel that answers or replies to the many charges would only react favorably to the attacker, in that we would furnish free advertising for him by bringing them to the attention of those who would otherwise not be aware of their exist-

ence. I find I must take issue with this sentiment. First, there is little likelihood of any criticism of the industry escaping the attention of those desiring to use same, and you can further rest assured that they themselves will give it the proper advertising; secondly, I might agree with the idea if we were really trying to hide something, if it were necessary to keep the public blind to our activities. But, my friends, this is not the case, and unless we are willing to call the hand of those who, either through ignorance, selfishness or maliciousness, try to picture a 'colored gentleman in the lumber yard' we will engender the suspicion of the entire public.

"Each of these criticisms and condemnations has incremented a movement which is growing not only in the sections from which the majority of our uplifters come, but also in our very midst; in the very states whose prosperity and growth have been not only augmented by, but have been dependent upon the mill industry, our southern colleges and universities have interested themselves in 'The Mill Village Complex.' The faculties are presenting to their classes the ideas of such treatises and articles as are available. Discussions follow. From information available and from their theoretical discussions taking place, conclusions are arrived at and opinions are moulded. Could we expect favorable conclusions and unbiased opinions, when the professional mind is entirely dependent for enlightenment upon such information and statistics as Frank Tannenbaum and his associates see fit to give? Their dissertations and expositions are convincing, first, in that they are always well written, are polished and are cultured; second, they play upon the sympathy and are appealing; and thirdly, they are permeated with the most convincing statistics to make them authentic. What could be more influential with the impractical and inexperienced mind than such unrefuted exposition? In a way I can compare it with the apparent candy which turns out to be a sugar coated laxative or pill, and although pleasant to the sense of taste is rather violent and sickening in its final action.

"Only a short time ago, in a speech, the vice-president of one of our greatest southern institutions of learning, called particular attention to the deplorable situation existing in his beloved state, in that the textile industry was a detrimental factor in its retarding influence upon cultural civilization. His ideas and descriptions were concurrent with those of many of our most radical and antagonistic critics. Yet, I do not believe that a more broad-minded or conscientious man fills a similar position. He, from his speech, is thoroughly convinced that the textile industry and its systems of organization and control are in entire discord with culture and civilization; therefore are detrimental to the commonwealth. He will feel it his duty to exert his influence in correcting the great evil. The 'textile complex' must be solved. These people are only aware of the dollars and cents the cotton manufacturer has derived from his investment, his ability and his patience. They cannot connect good roads, modern schools, colleges, music, art or the growing culture of their state with the lint-filled cotton mill and its 'feudal villages.' Nor do they look back thirty years and behold the poor whites, productions of our plantation era, unable to make a livelihood, uncultured, uneducated and socially ostracised by whites and blacks alike. They have forgotten that 'poor white trash' was the name given to our present mill operatives by the slaves of preconstruction days. If their fate is to be lamented now, what could have been said of their condition three decades ago? You people have seen a wonderful transition, you are fully aware of the cultural influence the mill village has exerted upon the inhabitants, and you should realize that the social welfare systems, coupled with the liberal policies of the managements, have brought about a development unparalleled by any other for the same period of time. You are conscious of all this, *but, gentlemen, let me emphasize, the public is not.*

"In the days when the textile industry was struggling for existence, no colleges, no institutions and no organizations offered assistance. It was the mill problem then. Many laughed up their sleeves at a people attempting to develop an industry contrary to all business laws and economic principles. The industry has passed the experimental stage, and has been proclaimed a success. Little attention is now paid to the important role such practices as paternalism has played in the achievement. The early history is forgotten, and, gentlemen, we now behold new characters, unsolicited agents, appearing upon the scene ready to direct the show according to their hypothetical and extremely theoretical ideas. A change of the purport, the cast and the scenery is demanded. With many it is for selfish and pecuniary gain, with others it is to give vent to an insatiable desire to be a reformer, to alleviate suffering humanity; and then there are those who are really striving for a good, practical, rational understanding. Men and women, as much opposed to radicalism as we ourselves are. With them we must cooperate. We must see that they are no longer forced to rely alone upon the arguments and statistics of our enemies. We can no longer afford to ignore the situation. Gentlemen, if our industry is to continue to prosper, if we are to avoid unsettled and perturbed conditions continuously prevalent in other sections, we must look further into the future with a preconception founded on past experiences and must study our conditions scientifically. We cannot afford to allow dangerous propaganda to be scattered like seed everywhere, and then fertilized so that it will germinate. The recent war has vividly impressed us with the unlimited power of propaganda.

"The Southern Textile Social Service Association offers a wonderful service to the industry and the South. The members enjoy the privileged opportunity of coming in closer contact with the mill operatives than any other people. Through their contacts, their education and training, they are in position to detect changes in sentiment and reactions as they are manifested. With proper cooperation from you, their influence and effectiveness can be greatly magnified. The members are more than zealous to be of a greater service to the industry, the Southland and our country.

"A standardization of our policies and practices is badly needed. A weakness in one system will invariably militate against all. The exceptions are used to characterize the industry. One lady, after describing the dark and dreary conditions of textile mills and villages, finally acknowledged that her basis of authority was a little isolated mill, miles away from a textile center, and run by a man incapable of holding any responsible position. The time has passed in which we can live unto ourselves alone. We must collaborate. One mill through a bad step can do the industry more harm than ten can offset with wisely directed policies.

"I have taken your time today to appeal to you to

consider problems other than your technical problems of machinery and production. I solicit your attention to the problem of safeguarding the future of your great industry. I invite you to utilize more fully the willing service of your social service workers and the Southern Textile Social Service Association.

"Your systems of human relationship and social service should be in keeping with the splendid physical equipment of your mills. The same degree of modernness, of standardism and of efficiency which characterizes the machinery which turns out your products should also apply to your policies and systems in lealing with the men and women in your employment.

"Realizing that the primary object of an industry is and should be to earn a return on the investment, and also the necessity of keeping within the just bounds of sane economic and social laws in so doing, I warn you that if you do not assist in considering your industrial situation as a whole, if you do not lend your efforts and service in correcting the weaknesses in your system, and if you do not consciously plan and outline the industry for the future: unsympathetic outsiders are going to do it for you. As stated before, all that has been said and done has not failed to have its effect, nor will it continue to unless we all cooperate for a better standardized, a more dignified and a greater industry."

At the conclusion of Mr. Heiss' address, the president opened the meeting for "Description of New Inventions and Improvements by Southern Mill Men," a regular feature of the meetings, tending toward the encouragement of inventive and initiative enterprise among the members. William W. Arnold, Jr., of LaGrange, Ga., described two recent inventions made by him, a slasher tension device, and an attachment for evening card sliver. Both of these devices were completely described in the October, 1924, issue of COTTON.

The concluding address of the convention was made by James McDowell, of Boston, Mass., internationally known cotton fiber expert, who is in charge of the new cotton research department at the Textile School of the North Carolina State College, Raleigh, N. C. He was introduced by Thomas Nelson, dean of the school.

Address of Mr. McDowell.

The speaker prefaced his address by outlining briefly what he attempts to do at North Carolina State in the way of fiber research. He declared that he has some cotton growing which he purposes to spin into 150s next Fall. The South, he said, can certainly spin much finer numbers than at present, by giving closer attention to the fiber selection. Continuing, he said in part:

"Instead of exporting cotton to Great Britain and other countries and having them send it back in fine yarns, we can do it just as well here if we would select the right cotton fibers for the kind of yarn we wish to make. We should get away from the old worn-out idea that 'cotton is cotton,' whether it has guts or just poor character. We must go into research for the selection of seed that is best suited for the district it is to be grown in. We should then see that it is cultivated properly, ginned after proper ageing and not try to see how much a gin can do in an hour or day. We should then pay the farmer a proper price for his labor for we must always remember that what is a benefit to one is a benefit to all. Well handled cotton fibers, well matured, are worth a great deal more to the manufacturer than he can estimate unless he has considerable knowledge of his fibers. What does a saving of ½ cent amount to when you have to slow down your front roll two or three turns or your waste is two or three per cent more? Where has your saving of ½ cent gone? What about your dyeing, bleaching, and finishing? We continue on in losses to both employer and employee as well as a dissatisfied customer.

"The cotton fiber is the only fiber, animal or vegetable that is perfect before human hands touch it. It is when we start to gin and manufacture that we injure it.

"It is self-evident that the establishment of a cotton mill in Chicago, or in any other non-textile center, would compel that mill to work at a great disadvantage in competition with those located in New Bedford. Equally as great a variation is to be found in the ability and efficiency of superintendents and overseers. A nice balance between technical knowledge, practical experience and ability to handle help is necessary to make an efficient superintendent or overseer, and the relative success of various mills depends largely on the training, personal character and enthusiasm of these individuals and their assistants.

F. Gordon Cobb, Elected Secretary-Treasurer.

"Quite as much variation as exists between the labor and management of various mills will be found in their executives, particularly in the latter's financing, buying and marketing ability. While skillful financing is necessary, there is little question but that success of more mills may be traced to able buying and marketing than to any other factor. I believe it is safe to assert that, as a class, cotton manufacturers know less about modern methods of salesmanship, styling and balancing distribution against pro-

duction than the executives of many other industries not nearly so important. We are still marketing the bulk of our production by methods established fifty years ago, and one of the greatest changes that may be expected in the future will be the development of marketing systems more in keeping with the times.

"In the gathering or picking of the cotton from the plant it is not the general practice to keep the different characters grown in the same field apart. The colored man in his picking does not discriminate and there is considerable variation in the quality produced by each plant and a greater variation produced from different parts of the field, even when the best of care has been taken in the selection of the seed. The result is that cotton differs in various essentials which are harmful in spinning. Such variation, such as length, strength, and touch of staple, also cotton which differs in resistance in ginning, should not be mixed together as that which is hardest to gin contains more impurities and dead fibers, causing them to suffer more damage in process.

"The architect who attempted to plan a building the engineer who attempted to develop a machine without knowing through experience and careful test, the character of his raw material would be regarded with proper suspicion. Our great engineering schools have developed elaborate laboratories for testing all forms of raw material. This is one of the most important phases in the training of young engineers. In our textile schools we have no special training for cotton selection and buying. Cotton is still selected by trial and error tests, often by individuals with only a narrow training confined to a single mill, and seldom with the background of sufficient training in laboratories to teach them the importance of microscopic investigation.

"The character of cloth or yarn is determined fundamentally by the character, type, grade, length, fineness, and twist of cotton used. It is obviously true that a good mill can make a better yarn out of a poor cotton than a poor mill can out of a good cotton, but executive ability, management, and labor being approximately the same then the kind of cotton selected will determine the success or failure of a mill organization.

"The problem of the cotton expert is not solved when he selects types of cotton that will spin into a certain grade and strength of yarn. He must select the grade of cotton that will give him the results desired and give them to him at the lowest possible cost. Roughly speaking, about 150 types of American cottons may be found in the market today. That is, a buyer can go into the market and buy 150 bales of cotton in a single day, each of which would be of a different commercial character. Let us assume, for the sake of argument, that a cotton buyer did this and kept a careful record of each plantation from which each bale of cotton came. If he repeated this experiment the following year, he might find a 75 per cent variation. In other words, cotton from the same plantation, from the same fields, grown from the same seeds, and cultivated by the same men, will in two years' time show a 75 per cent variation either up or down. Too much rain in one section; too little fertilizer; certain differences in ginning conditions; and the usual variations in soil and climate affect cotton in a widely varying degree. The cotton fiber is the most inconsistent of all raw materials and will probably remain so for many years. We must, therefore, use the greatest care and give the most particular attention to all details so that no matter how often types vary in the field or in the market, we shall always have the proper fiber in the mill.

"The three most important qualities of cotton are character, fineness and length. In the spinning of coarse yarns the most essential quality is good character; that is a proper amount of twist, reasonable evenness of length and the elimination of immature and overripe fibers. The presence of immature and overripe fibers not only diminishes the strength of the yarn, but prevents it from bleaching, dyeing, and printing evenly. Mistakes in cotton selection will find expression in seconds of yarn and fabric as well as in excessive waste.

"You must remember that if you select too fine a grade, or pay too high a premium, you will make your goods too costly for profitable sale. The margin between what is right and what is wrong is very small, and only extremely accurate judgment or test can start you right. The diameter and spirality, or twist, while of importance, even in coarse yarns, are not so essential as the other elements. In fine count yarns we should give very careful consideration to the fineness, spirality, and maturity of the cotton as well as to length.

"Spirality, or natural twist, usually increases in proportion to the fineness of the fiber. The strength of yarn, therefore, is almost directly proportional to the number of fibers that can be incorporated in a cross section. The strength of the individual fibers bears little or no relationship to the strength of the yarn, for a yarn that is broken will show only from seven to ten per cent of broken fibers. These are the fibers that have carried the load, and the remainder simply slip on each other, their interlocking spirals failing to hold. Immature and overripe fibers aid this slipping and consequently diminish the strength of the yarn. Fully ripe, mature cotton is essential for proper dyeing and printing. Many evils are blamed on the dyer or dye-maker that are really due to the carelessness or ignorance of the cotton buyer.

"The matter of greatest importance to spinners in regard to 'staple' is the consequences when cotton contains fibers longer than those for which the setting of the rollers is most applicable. On this account the length of the longest fibers contained in the staple is the point to which spinners give great attention. Variations in the length of the fibers comprising the staple lower the quality of the product by diminishing the bond among the fibers, and add to the difficulties of carrying on the work by causing irregularity in size and distribution of the fibers. The strength of the yarn is only maintained by its being uniform and this is in the presence of fibers of the characteristic length. When the fibers are not of the usual strength the yarn is proportionately affected unless its uniformity is improved to a counteracting extent. The difficulties arising are those ensuing through breakages and also those common to increased bodies of fibers which become detached in the treatment and which become impedimental and find their way, more or less, again to the threads, thus forming enlargements.

"Staple has reference to the following characteristics of cotton: Length, strength, and touch of the fibers. It is, therefore, surprising to the lay mind that no really good standards appear to exist as to the precise extent to which

these characteristics should exist in the use of the customary terms employed in expressing the various qualities of the staple. Hence, it is not surprising to find much confusion in the use of this word.

"The ideal staple, which, of course, is never obtained, but which must form an imaginary basis, is that wherein the staples drawn throughout a sample of cotton are alike, and all the fibers comprised in each sample are of exactly the same length. The worst staple being when the fibers differ in length as widely as possible. Another matter which adds to confusion is the practice of not confining comparisons as to staple alone to the maximum length, but using instead some other measure as, for instance, the average.

"The use of finer than the maximum is improper, reprehensive, because the measure had to be taken at some point between the minimum and maximum. In this case, taking the average length for example, we may have considerable difference in the length of the longest fibers in the several staples having the same average length."

At the end of his talk, Mr. McDowell showed a set of interesting lantern slides of various textile fibers.

Going into a business session, the Association heard the report of Chairman Gibson, of the board of governors, which made two recommendations: (1) that the semi-annual meetings of the Association, in the Fall, be continued; and (2) that the next meeting be held at Columbus, Ga. This report was adopted. The election of officers was next held with the result reported at the beginning of this story. L. L. Brown presented the Association medal to Retiring President Dilling, with a few well-chosen words, following which the new president, Mr. Grimes, assumed the chair and the meeting was adjourned.

Ridding Our Mills of "Painted Ships"

BY R. B. WILLIAMS.

A short distance below Hog Island a hundred or more great, wooden ships lie idle and lifeless, lashed together, doing nothing more than lifting and lowering with the tide of Chesapeake Bay. Those ships were built by the government, for transport service during the war. From the standpoint of activity, they are comparable to the Ancient Mariner's "painted ships on a painted ocean." In consideration of expense, they are an outstanding example of governmental mismanagement. For the American industrialist they hold within themselves a great lesson. It is the lesson of obsolete equipment, and one we find hard to learn.

The government made no mistake in building the ships. They were not designed to break endurance records, but to win a war. The mistake was made when the government failed to dispose of them once their usefulness was lost. But this error, so costly in money, political talk and printer's ink, is only added evidence of the human characteristic that makes us cling to things which have outlived their usefulness, just because they represent an investment, because they have *some* value.

Instead of wondering why those in authority did not sell the ships to the highest bidder immediately upon the close of the war, we might well turn to our own mills and ask ourselves, "Have *we* any painted ships—any obsolete equipment, eating up interest and depreciation charges in *our* mills?" If that question were asked in sincerity—if outside engineers with the broader perspective were called in to make a survey of mechanical equipment—our textile mills would be found full of "painted ships" which are daily exacting an incalculable toll in reduced production or increased labor charges.

This is the age of inventions. At no time have improved machines, amended practices or bettered methods been brought forward with greater rapidity. So rapid is the advancement of science that we are continually compelled to leave behind us costly abandonments. And so far reaching are the newer improvements that unless we are willing to make such abandonments—unless we are ready to take our losses in obsolete equipment—we must endure increased overhead and reduced production with their attending high costs.

Perhaps no division of industry has shown more rapid development than that of power, although special equipment in the manufacturing end will run a close second. New devices and appliances, improved machines and bettered methods, are being developed with such rapidity in the power field that almost every large generating plant recently erected is different in some particular from all others. Because thereof, few places afford greater opportunity for economy, or provide greater chance for waste due to mechanical inefficiency, than the power plant.

Present day power generating practice is far from being perfect. In some instances the power wasted by the industrial plant is equal to the profits of that establishment. Entirely too many plants are wasting fifty per cent of the power generated. Almost all plants waste from ten to twenty per cent, the ones having reduced their waste to ten per cent being on the preferred list. From whatever cause, be it ignorance, carelessness, or the trait of hesitating before making mechanical changes for the better, wasting more than twenty per cent of the power generated indicates a power plant sickness extremely dangerous to the welfare of the company.

Among the steps possible to effect savings in the power division of the textile mill, the first is definite knowledge of power costs. The second step is accurate information as to where that power is going. Not only should the total cost for generating power be accurately defined, but that total should be detailed as to fuel costs, labor charges, water, supplies, maintenance and management. Next, the power, heat and light requirements of each department should be known, and those departments should be charged for what they use just as if the company power plant were a public utility. Of a surety, this requires complete metering, but meters are a necessary tool in the economical performance of any power plant. Without them, definite and accurate records are impossible, and in the lack of such records, no engineer can expect to reduce waste power or minimize his costs.

This has been proved hundreds of times and under scores of widely varying circumstances. One instance comes to mind, however, of the experience of the chief engineer of a large textile mill located in New England. For a number of years this company had employed the practice

of testing their CO_2 once a day with a hand set. This method was very unsatisfactory since the tests merely indicated the condition of the boiler at the moment the sample was taken. This condition might have been, and in all probability was, entirely different fifteen minutes later. The tests did not indicate the average conditions with the result that they were, for the most part, operating in the dark so far as making adjustment at the proper time.

In this plant seven boilers are employed, five of which are rated at 500 H.P., two being 250 H.P. These boilers are under load constantly, operating at about 180 per cent of rating. Each of them have recently been equipped with CO_2 recording instruments. These instruments are located in a prominent place for the easy observation of the firemen. Through them any variation in the CO_2 is immediately shown, which indication makes correction possible through proper adjustment to the dampers.

The greatest value of the recorders comes from this advance warning and the ability to make adjustments before "forcing" is required. Under the old method their CO_2 averaged eight per cent while now the average content is twelve per cent—a very satisfactory combustion under the prevailing conditions.

The charts and records made by these instruments show what a short time is often required to obtain a complete change in the CO_2 content. Five to ten minutes on the chart may show a big drop. Without the continuous record it would be impossible to see this change and the boilers would be operating inefficiently.

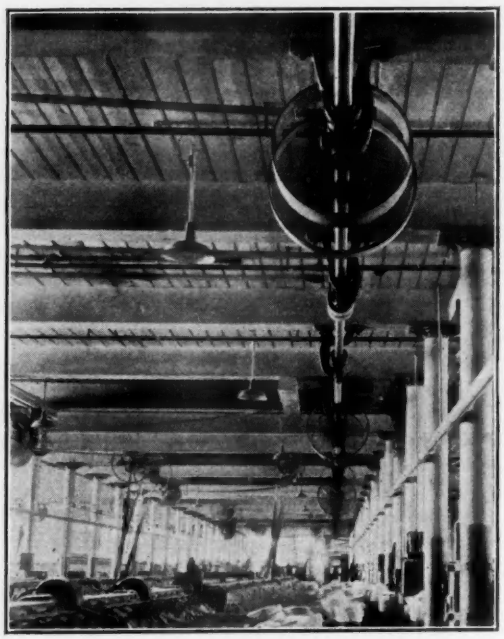
Just what increasing the CO_2 content from 8 to 12 per cent means will be understood when it is said that the change has effected a direct saving of 8.5 per cent of the fuel consumed. 8.5 per cent of the annual fuel bill, expressed in terms of dollars, means a total of something over $30,000 for the battery of seven boilers.

Another instance of power waste elimination through the installation of more efficient equipment and the adoption of bettered practices is found in the experience of the chief engineer for a North Carolina cotton mill. It seems this engineer encountered a very unusual condition which developed in their feed water supply about three or four years ago. A great deal of trouble was caused by heavy foaming in the boilers due to the large amount of organic matter suspended in the water. In commenting on the situation the engineer said: "All our water comes from the nearby hills and is pumped directly from the river into the boilers. Before it reaches us it passes over some rather rich soil and picks up a large amount of weeds, grass, moss and other organic matter which is sufficiently rotted to be held in suspension.

"This matter being present caused the formation of a very thick foam over the water when it was boiled, the steam drum becoming full of the foam. Some of it went through the superheater to the engines, and this passage of the foam would clear the drum until more water was drawn in. Since we were evaporating about 80,000 pounds of water per hour and the process occurred periodically, a slug was carried over almost every thirty minutes. These slugs eliminated the superheat entirely. Whenever one of them reached the engine, the speed was materially reduced, it often taking from three to five minutes to recover. This condition of course affected the operation of the machines being driven and caused a great deal of trouble.

"One of the most serious effects of these slugs was due to the fact that they cleared out all of the oil from the cylinders of the engines. This caused an immense amount of trouble and we were constantly at the work of changing packing rings and reboring cylinders. Where an engine should have operated efficiently for five years, complete overhauling was often necessary in six months. The traps and valves along the steam lines were wont to clog rapidly —1 to 2 weeks—and this required constant attention. Analysis showed the sludge taken from the traps to be 65 per cent carbon, and would burn when dried."

All of which was very detrimental to the engines and the driven machines and cost a great deal of money in time and maintenance. But it was a condition completely eliminated by the installation of a battery of four steam purifiers. Since the purifiers have been put in operation the steam charts show an almost constant superheat throughout the day, in spite of the fact that water conditions remain the same. By the elimination of the foam slugs there has resulted a heavy saving in repairs and maintenance and the increased engine efficiency due to higher superheat effects a saving of at least two per cent of the fuel bill.



Line Shaft Equipped with Ball Bearing Hangers.

Not alone in the generating plant proper, however, is power wasted. Transmission equipment can cause a very serious wastage of power, or can be a source of actual revenue. In the transmission of power, friction is perhaps the most costly element that has to be overcome. When friction is minimized either more power is delivered or power consumption is decreased. For this reason inexpensive attention paid to bearings and bearing surfaces often results in worth while economies.

For a number of years a southern mill employed a certain type of bearings with what seemed to be a satisfactory degree of economy and success. During 1923, however, a change was made in line shaft bearings alone, which change to an entirely different type of bearings effected a saving of 20.5 per cent of the power at light load and 15.5 per cent

of the power at full load. This direct minimization in power costs was equivalent to 53 horsepower, the monetary value of which can readily be calculated.

Cited here are only three or four instances of economy effected through the installation of more efficient equipment or the adoption of bettered practices. They are examples, however, nearly every textile mill executive might well consider, for they are typical of the whole fleet of "painted ships" that can be found in and around the power plant and the mill proper, "ships" that are eating up interest charges, increasing overhead or reducing production. "Painted ships" are seldom famed for their mobility or earning power. In like measure obsolete equipment or inefficient methods are a source of expense. However small the salvage on our "painted ships," that salvage is better than the invisible losses consequent to continued operation.

Human Relationships in Industry

BY W. M. McLAURINE.

Waste.

Waste is the curse of the world. Nearly all people are producers of some kind, but they are also great wasters. The difference between production and waste often means success or failure. It is of not so much importance what our wages are, past a certain point. It is of value though how much we save.

Waste is so varied and complex in its makeup, so insidious and insinuating in its attacks that it grasps hold of its victim and drags him to ruin before he realizes it.

A few items such as time, energy, money, materials, machinery, health, brains, friendships, opportunities indicate the rapid and recurring role in which it comes and assaults us.

It takes such a little here and there that it is not worth our attention. It is the penny that we must watch in our purse. Cancer or tuberculosis, we recognize in its most virulent form. They had their origin in the human body in a place so small that a microscope was needed for its location and detection.

Below are a few calculations that you can make for yourself. When this is written cotton is worth 34 cents per pound, or $170 per bale. The average mill can not manufacture cotton from the bale on less than ten per cent or twelve per cent waste. That means the waste at once starts at $17 to $20 per bale.

If your mill uses 30,000 bales of cotton per year, your waste item here is $350,000 to $400,000 at once.

Suppose, in taking the bagging and ties off that one ounce of cotton sticks to the bag and ties that should come off. That means 30,000 ounces per year or 1,875 pounds. At 34 cents the amount equals $627.50.

The leader can take up any process or combination where there is waste and figure not on the little bit from one process, but the amount resulting from a year's waste at that place.

Some suggested calculations are: 1. Cost of bobbins, shuttles, repairs of all kinds. 2. Failure to oil or repair. 3. Accidents. 4. Cost in slasher room. 5. Cost of tardiness.

Where the Mill Profits May Go.

Ralph E. Loper & Co., of Fall River, have prepared the following interesting figures as a "conservative statement" of what may actually happen in mills making a profit of one-eighth cent per yard of cloth. Many mills, they point out, made much less during 1921 and 1922. The figures are reprinted from the bulletin of the National Association of Cotton Manufacturers:

"When the firemen save one wheelbarrow of coal, the mill gains the profit on 14 cuts of cloth.

"When a weaver makes one cut of seconds, the mill loses the profit on four cuts of cloth.

"One dead spindle in roving costs the mill the profit on from two to six cuts of cloth.

"Each pound of white waste put into sweepings cost the mill the profit on four cuts of cloth.

"When a draw-frame roll is spoiled the mill loses the profit on six cuts of cloth.

"Re-drawing one warp costs the mill the profit on 15 cuts of cloth.

"When a shuttle is broken, the mill loses the profit on 15 cuts of cloth.

"The spoiling of one reed costs the mill the profit on 25 cuts of cloth.

"When the spooler boxes continually contain one pound less than the standard amount of yarn, the mill loses the profit on two bales of cloth each week.

"When the cuts average one yard short of standard, the mill loses the profit on 19 bales of cloth each week.

"An average loss of five minutes per day, through tardiness, washing up early, etc., costs the mill the profit on 40 bales of cloth, weekly.

"When the cloth folders measure 36⅛ inch for a yard, the mill loses the profit on 50 bales of cloth per week.

"When the cloth is apparently of correct weight as baled, but the moisture content is 1 per cent below normal, the loss amounts to the profit on 50 bales of cloth, weekly.

"If through the cooperation of the overseers and the employees, the waste can be reduced two per cent, the saving is equivalent to the profit on 40 bales of cloth weekly.

"A seven per cent increase in production will reduce the manufacturing cost by one cent per pound on print cloth; one cent per pound of cloth will pay for all the bobbins, shuttles, reeds, harnesses, starch, teaming, oil, belting and roll covering required by the mill."

An analysis of kinds of waste that occur in various departments and places follows:

Opening Room: a. Loss in bag and ties. b. Loss in cotton sticking to bag and ties. c. Loss in sweepings on the floor. d. Loss in motes. e. Loss in dust. f. Invisible waste, including (1) Loss of moisture.

Pickers: a. Making lap too light or too heavy. b. Lap waste. c. Motes. d. Dust. e. Sweepings. f. Oily waste. g. Invisible waste.

Cards: a. Lap waste, subdivided into split waste; piecing up; poor doffing on the picker, and uneven lap. b. Card sliver waste. c. Strippings. d. Flyings. e. Motes. f. Sweepings. g. Invisible.

Drawing Frames: a. Sliver waste, subdivided into piecing up ends; singling and doublings, and laps on rolls. b. Clearer waste. c. Sweepings. d. Invisible.

Fly Frames: Slubber. (a) Sliver waste, including:

1. piecing up, and 2, singling and doubling. (b) Roving waste, including, 1, piecing up; 2, singling and doubling; 3, lap on rolls. (c) Clearer waste.

Fly Frames—Intermediate and Jack Frames: (a) Roving waste, including, 1, piecing up; 2, singling and doubling; 3, lap-up on rolls, and 4, hard ends. (b) Clearer waste. (c) Oily waste. (d) Sweepings. (e) Invisible.

Reducible Waste.

Dividing this waste up for analysis, we may class as Reducible Waste the following: Opener Room: Loss in cotton sticking to the bagging and ties, and loss in sweepings. Pickers: Making lap too light or too heavy; lap waste; sweepings, and oily waste. Cards: Lap waste; card sliver waste, and sweepings. Fly Frames: Sliver and roving waste on the slubber; roving and oily waste on the intermediate and jack frames, and sweepings from both.

There are other types of waste that may be classed as reducible, but the foregoing are the principle ones. It will be well for the group, from their own experience, to separate the reducible waste, the irreducible waste, the workable waste, the unworkable waste and the necessary waste into columns for study.

This study will reveal the fact that there are about forty-five or fifty opportunities for waste to occur in the card room. The members of the group should study the card room in their own particular mill to find out, if possible, where abnormal waste is occurring. They should then endeavor to find the causes, locate the responsibilities for these causes, and endeavor to suggest remedies for overcoming this excessive waste.

Later on in this conference a copy of an actual test made in one of the Georgia mills will be given. It is advisable that the waste indicated in that analysis, and the foregoing analysis should be compared. It is advisable, if possible, to try to set up maximum waste standards permissible throughout the various waste points of the card room. An analysis of the other departments now follows:

Spinning: a. Scavenger waste. b. Roving waste. c. Thread waste. d. Clearer waste. e. Sweepings. f. Invisible.

Spooler: a. Soft thread waste. b. Sweepings. c. Invisible.

Warpers: a. Soft thread waste. b. Sweepings. c. Invisible.

Twisters: a. Soft thread and soft twine (according to ply). b. Hard thread. c. Cable. d. Sweepings. e. Invisible.

Respooler and Splicing: a. Soft twine. b. Hard twine. c. Cable twine. d. Sweepings. e. Invisible.

Quillers: a. Soft twine. b. Sweepings. c. Invisible.

Weaving Department: a. Soft thread (according to ply). b. Cable. c. Ball thread. d. Sweepings. e. Loom aprons. f. Fabric warp ends. g. Cable warp ends. h. (Cloth cut off). i. Invisible.

Cloth Room: a. Soft thread. b. Cable. c. Cloth cut off. d. Sweepings.

Whole department responsible to weave room.

Record of a test of red tinged cotton manufactured the same as regular XY stock in Marsh Hill Mill into yarn on the beam:

Weight of cotton baled.....2370 lbs.			
Weight of bagging and ties... 113 lbs.	4.77%	95.23%	
Net weight of cotton.....2257 lbs.			
Cotton not used ..... 25 lbs.			
Net weight of cotton used....2252 lbs.			
Reworkable lap waste ..... 28 lbs.			
Cotton actually used .....2204 lbs.			
Visible waste:			
Motes ..... 8 lbs.			
Motes .....35 lbs.			
Sweeps ..... 2 lbs.			
Invisible .....21 lbs.	66 lbs.	3.00%	97.00%
	2138 lbs.		92.3731%
Reworkable waste..53 lbs.			
Laps delivered .....2138 lbs.			
Reworkable waste.:			
Card laps.....13 lbs.			
Card sliver .....75 lbs.			
Drawing sliver...22½ lbs.	110½ lbs.		
Net weight used .....2027½ lbs.			
Visible waste:			
Card flyings ....29 lbs.			
Card sweepings.. 3½ lbs.			
Card strippings..82 lbs.			93.76%
Invisible .....12 lbs.	126½ lbs.	6.24%	86.61%
Finished drawing .....1901 lbs.			
Reworkable waste:			
Slubber roving ..13 lbs.			
In'mediate rov'g 18 lbs.			
Jack roving ....19 lbs.	50 lbs.		
Drawing W. used .....1851 lbs.			
Visible waste:			
Sweepings ..... 4 lbs.			99.73%
Invisible ..... 1 lb.	5 lbs.	27%	86.375%
	1846 lbs.		
Reworkable waste:			
Roving .....50 lbs.	50 lbs.		
Net roving used .....1796 lbs.			
Visible waste:			
Clearer waste ... 4 lbs.			99.53%
Sweepings ..... 4 lbs.	8 lbs.	4.46%	85.99%
	1788 lbs.		

Reworkable waste reworked and figured at above process will amount to the following:

Total reworkable waste:			
Cotton ..... 25 lbs.			
Lap waste ..... 28 lbs.			
Card and drawing ..... 110½ lbs			
Roving ..... 50 lbs.			
Roving ..... 50 lbs.	263.5 lbs.		
Finished picker laps..... 255.6 lbs.			
Finished drawing ..... 239.6 lbs.			
Finished roving ..... 238.9 lbs.			
Finished yarn .....1788 lbs.			
Total finished yarn .....2026 lbs.			
Total cotton used .....2370 lbs.			85.48%
Waste ..... 344 lbs.		14.52%	
Finished yarn .....1788 lbs			
Left on spools ..... 108 lbs.			
Yarn used .....1680 lbs.			
Visible waste:			
Spooler ..... 6 lbs.			
Warper ..... 7 lbs.			91.166%
Invisible ..... 1 lb.	14 lbs.	.8333%	84.77%
Yarn beamed .....1666 lbs.			
Finished yarn .....1666 lbs.			
Waste:			
Twister waste ... 4 lbs.			99.46%
Drop ply ..... 5 lbs.	9 lbs.	.54%	84.31%
	1657 lbs.		
Yarn twisted .....1657 lbs.			
Left on spools and waste workable ..... 486¾ lbs.			
Yarn used .....1170¼ lbs.			
Waste:			
Compressor ..... ½ lb.			
Quillers ..... ½ lb.			
Quill waste .....22½ lbs.			
Warp ends ..... 3½ lbs.			
Sweepings ..... 1½ lbs.			96.667%
Other waste ....10½ lbs.	39 lbs.	3.33%	
Finished cloth .....1131¼ lbs.			81.50%
Total waste per cent.....		18.50%	

The Mineral Colors

BY JOHN BROADBENT.

Chrome yellow or Chromate of Lead. Yellow is the primary color that in the natural state, occurs between red and the active principle of pure light and is consequently the brightest in the solar spectrum and the lightest and most delicate of the primary colors. In the neutral gray therefore, its power is greater than that of the other two, being more allied to light. In artificial light, the purest yellow loses much of its intensity, and can scarcely be distinguished from white. This arises from such lights generally being of a yellow tone and consequently diffusing this color over all objects within their influence.

The salts of lead and chromium have completely superseded the use of vegetable dyestuffs for the dyeing of yellows, oranges and greens upon cotton goods and chromate of lead, which is a bright yellow, may be communicated to the cloth by the consecutive application of solutions of acetate or nitrate of lead and bichromate of potash or soda, or the oxide of lead may be first fixed upon the cloth in an insoluable state as, carbonate, tartrate or sulphate. It consists of one equivalent of chromic acid and one equivalent of oxide of lead.

Chromate of lead is a rich pigment of various shades from the palest canary yellow to the deepest orange. It is made by adding a limpid solution of the neutral chromate to a solution equally limpid of acetate or nitrate of lead. A precipitate falls which must be well washed, and carefully dried, out of the reach of any sulphurated vapors. A brighter shade of yellow is obtained by mixing some solutions of alum or sulphuric acid with the chromate, before pouring it into the solution of lead; and an orange tint is to be procured by the addition of sub-acetate of lead in any desired proportion.

The solution of acetate of lead is got by dissolving litharge or metallic lead in acetic acid (or nitric). The acetate of lead when prepared in this way, contains one portion of oxide and one of acetic acid; but by boiling the salt for some time over litharge, the acid will combine with two, three or even six proportions of lead forming what are termed basic salts. This fact has been known to practical dyers for some years, and it is made available for dyeing orange or dark shades of yellow. A solution of acetate of lead may be partly decomposed by ammonia so as to form sub-acetates. On adding a small quantity of the alkali a sub-acetate is formed composed of one equivalent of acid and two of base. A little more produces a compound of one equivalent of acid and three of base and an excess of ammonia precipitates a salt composed of one of acid and six of base.

The bichromate of soda, which is the salt used in dyeing, is prepared from the yellow chromate by adding a little sulphuric acid to it, which combines with a portion of the soda leaving two portions of chromic acid with one portion of soda and which crystallize with large crystals of a rich orange-red color. This salt is used in the arts, not only for dyeing, but for the preparation of other chrome compounds.

The bichromate which is the salt used in the dyeing, is prepared from the yellow as follows: Into a concentrated solution of the yellow salt is poured acetic acid. The quantity of acid is so regulated, that it combines with one-half of the potash in the yellow salt, leaving two proportions of chromic acid in union with the other half.

The solution of yellow salt being concentrated before the addition of an acid, the bichromate (of soda) formed has not so much water as to hold it in solution, and is therefore thrown down as an orange red powder. This is carefully collected, dissolved again in water, and crystallized at a low temperature. The bichromate of potash, when sulphuric acid has been used is sometimes adulterated 40 per cent, it is better to get, for yellows, *bichromate of soda* made with acetic acid; most of the salt of commerce is made from sulphuric acid; however, it is almost the same.

Soda is sometimes used instead of potash in the preparation of the salt of chrome, and serves the dyer just as well. The combination with other bases of chromic acid is affected by decomposing the bichromate with the salt of the base wanted. For example, to prepare the chromate of lead a soluble salt of lead, such as the acetate, is added to a solution of the bichromate, a double reaction takes place and there is formed a salt of potash, and an insoluable salt of lead.

This chromate of lead is a rich lemon yellow powder, which constitutes the chrome yellow dye. If this powder be digested in hot caustic soda or brine, it is partly decomposed; the potash unites with one proportion of the chromic acid and there is formed the basic acetate of lead.

It must be remembered that the mineral colors are still extensively used; their fastness is remarkable and that they impart weight to the cotton cloth. It must also be borne in upon the mind of the present day dyer that the following methods of dyeing chrome yellow have given the most satisfactory results. In the first place, a basic lead acetate is prepared by boiling, 4 to 6 hours, of 60 pounds litharge, 120 pounds brown sugar of lead and 35 gallons of water. The goods are worked for about one-half hour, according to the shade they are required, in about 3 degrees to 8 degrees Tw. of the acetate solution after being well wrung (i.e., squeezed) it is passed through a bath of 1 to 3 pounds of potassium bichromate in 10 gallons of water with or without the addition of ½ to 1 pound of sulphuric acid. It is finally washed and dried. It should be oiled and washed well to prevent it from dusting off after drying.

A better yellow is produced if the yarn is turned a few times in the lead acetate and the goods are allowed to remain in the lead acetate over night. They are taken out in the morning, well wrung and turned ten times in a cold bath containing 3½ pounds of quick lime which has been carefully slacked with boiling water. The goods are squeezed and run four times in a bath containing 5 pounds chromate of soda, 6 ounces of alum and 1 pound of sulphuric acid.

The following method of dyeing chrome yellow is given by Knecht, Rawson and Loenthal. In the first place the stock liquor for lead is made as follows: "100 pounds brown sugar of lead, 50 pounds litharge, 36 gallons of water.

Pass the yarn, etc., through lime water, at 1½ Tw., and wring, then work in a solution of basic acetate of lead, prepared by diluting the stock liquor with cold water to 10 Tw., wring out and pass through another tub with lime water at 1½ Tw. The lead liquor is used continuously and maintained at the same strength by the addition of fresh stock liquor. The chrome bath is prepared with about 6 pounds of bichromate of soda per 100 gallons (cold) and is from time to time freshened up with fresh bichrome solution. The yarn is then passed through a chrome bath and then turned a few times in water, containing one quart of hydrochloric acid per 300 parts of water, and finally washed in water and dried."

"Lemon Yellow:—Prepare a stock liquor by dissolving 100 pounds of brown sugar of lead in 80 gallons of water, to stand at about 16 degrees Tw. Fill a vat holding about 40 gallons of water and add 3 pints of stock liquor and one gallon of caustic lye 70 degrees Tw., turn the yarn about three times in the bath and wring and pass through the chrome bath, wring, wash, and dry. The chrome bath is prepared for a vat of 40 gallons, with 3 pounds of bichromate of soda and 6 ounces of sulphate of zinc."

Chrome yellow shades are shades that can be easily matched by the coal tar direct and other colors, but they will not give the same weight and therefore the mineral colors are used; the shades are fast to acids, light and soap; they are, however, turned brownish by sulphurated hydrogen and orange by alkali.

Chrome orange or sub-chromate of soda is a dark orange red pigment consisting of one equivalent of chromic acid and two equivalents of oxide of lead. To apply it to cotton the piece is first dyed chrome yellow as above, and is afterward passed through hot milk of lime by which a portion of the chromic acid of the chrome yellow is separated; the raising of the orange, as the hot liming is termed, is the most trying operation. If the lead has not been properly prepared, or if there has been mismanagement in the operation of fixing it upon the fiber, the hot lime will take all the color off, leaving but a red salmon shade, or it may come off in parts. Several causes operate to produce these results. Oranges once gone wrong are very difficult to recover. Bichromate of soda may be used instead of bichromate of potash. The goods are finally treated in a bath which contains some softener such as soap, soda ash and Turkey red oil, squeezed without washing and dried. Chrome orange is fast to light, soap and alkali but is turned yellow by acids.

Chrome greens are dyed in the same manner as the yellow, the goods being previously dyed by means of the blue vat (indigo). For dyeing, nitrate of lead is never used, as anything that tends to redden the hue is carefully avoided, so that the goods are not allowed to stand for any time out of the solution of the bichromate, yet with all the care that is used there is much difficulty in avoiding brown blotches and light spots. We may add here, that if the lead were reduced to the state of an oxide upon the goods previous to being put into the bichromate of soda and no acid added to the chrome solution, there would be neither brown nor light spots upon the goods and with ordinary care the color would be perfectly uniform. The method practiced by the majority of dyers for obtaining chrome green on cotton is as follows:

Dye goods blue in cold indigo and clear in warm water. Boil 20 pounds brown sugar of lead until dissolved, put in 5 pounds litharge and boil 40 minutes, stop boiling and give 1½ pounds slacked lime, stir up and then allow to settle. Make up a tub with cold water, take the clear of this and make up a liquor until it stands at 2½ degrees Tw., enter and run 4 times, keeping goods at 2½ degrees Tw. Make up a tub with cold water with one-half of a pound of bichromate of soda, using about one-half pound to each 10 pounds of goods, stir up and enter goods, run two times, squeeze, wash off with a little lead water from first tub and dry, etc.

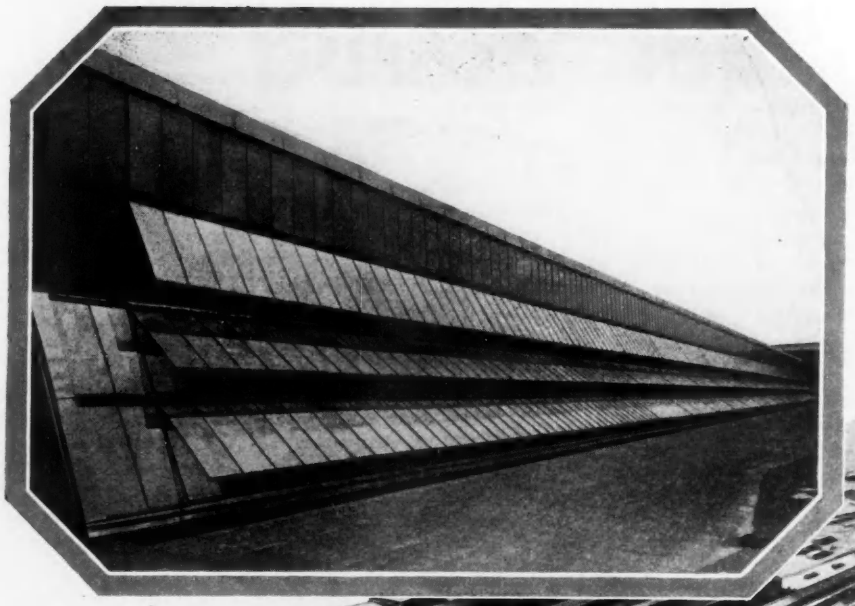
Khaki is very largely dyed on goods for the army. It is dyed on cotton piece goods such as twills and is a shade of drab which is one of the fastest known colors. Shades and colors exactly similar in sulphur dyestuffs and alizarine dyestuffs and by direct cotton colors and by the combination of the vat colors may be produced on these goods and though they look the same in the opinion of many they have not been able to replace the real khaki. They are not so fast to all agencies.

This is one of the great objections to real khaki, it makes the various cloths hard to sew that are dyed with it, it finishes so very hard. A real Khaki color is made up of ferric hydrates and chromic hydrates that are fixed indelibly upon the fiber. The cloth thoroughly scoured, is run through a mixture of chromic and ferrous hydrates, the former being obtained by the reduction of bichromate of soda with glucose and sulphuric acid in the presence of acetic acid (or acetate of lime and sulphate of chrome and pyrolignite of iron). The passages through the padding machine with the liquor standing at 36 degrees Tw., are two. The goods are then passed through a boiling solution of caustic soda and carbonate of soda at 12 degrees Tw. The proportion of caustic soda to sodium carbonate in the fixing liquor is 1:3. The greatest care must be taken to prevent the cloth from creasing or folding during boiling, scouring or dyeing, or uneven and streaky shades will often result. The scouring and the souring should be conducted at the open width, in fact, *all* the operation should be conducted in this way.

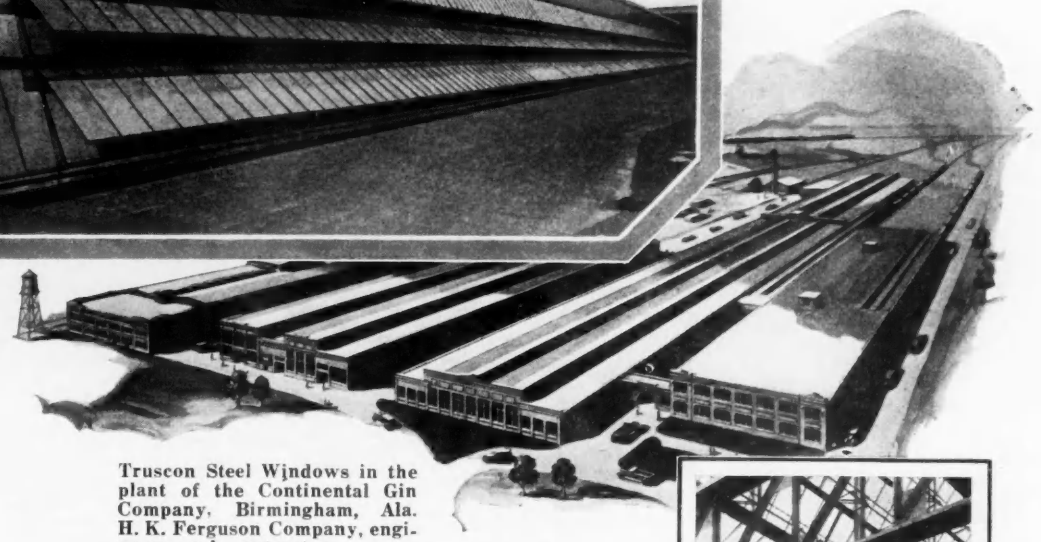
L. G. HOOPER recently resigned as superintendent of the Johnston Manufacturing Company, North Carlotte, N. C., to become superintendent of the Jewell Cotton Mills, at Thomasville, N. C. John W. Long, formerly superintendent of the Clover Cotton Mills, Clover, S. C., has become superintendent at the Johnson Manufacturing Company, North Charlotte, and G. R. Hooper has resigned as superintendent of the Jewell Cotton Mills, Thomasville, N. C., to become superintendent of the Clover Cotton Mills, at Clover, S. C.

C. E. DAVIS, who has been superintendent of the spinning department of the Perkins Hosiery Mills, Columbus, Ga., has been made superintendent of the Maginnis Cotton Mills, New Orleans, La.

Link-Belt Company of Indianapolis, Chicago and Philadelphia has just announced that it has placed in operation a new plan by which complete lines of silent chain drives of from one-quarter to ten horsepower, in practically any reduction from one to one to seven to one, are now available for immediate delivery by distributors located in many principal cities of the country.



The great plant of the Studebaker Corporation in South Bend, Indiana, receives full daylight and natural ventilation from Truscon Steel Windows and Mechanical Operators.



Truscon Steel Windows in the plant of the Continental Gin Company, Birmingham, Ala. H. K. Ferguson Company, engineers and contractors.

Instantly Controlled Ventilation for the Textile Industry

Truscon Steel Windows and Mechanical Operators are a boon to textile plants where conditions of the industry often demand quick control of natural ventilation. Dust, lint, fumes and other disagreeable factors that destroy full working efficiency of employees can be instantly cleared by the simple pressure of a button. Full daylight is also secured with Truscon Steel Windows and both in erection and maintenance they cost less than other types of permanent wall construction.

Consult Truscon Before Building

Truscon specialists in problems of daylighting and natural ventilation will confer with you on Steel Window and Mechanical Operator installations without charge or obligation.

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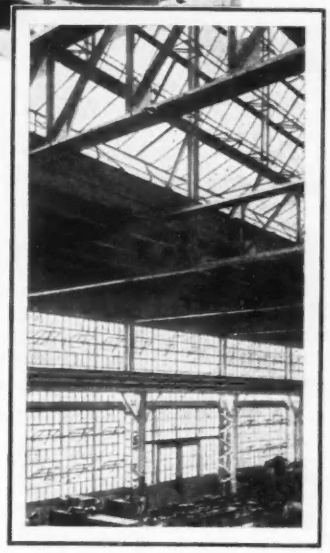


Truscon Steel Windows and Mechanical Operators in the plant of the Ford Motor Company at River Rouge.

TRUSCON
STEEL WINDOWS
AND MECHANICAL OPERATORS

TRUSCON STEEL CO.

TRUSCON
NATIONAL
ERECTION SERVICE
Assures Accuracy Speed & Economy

What the Southern Mills are Doing

The Caraleigh Mills Company, Raleigh, N. C., have established a cooperative group insurance program out of expressed appreciation of the services of its employees, it is announced. More than 150 workers are insured under the plan, which provides a total life insurance coverage of approximately $135,000, together with accident and health benefits. The contract, which was underwritten by the Metropolitan Life Insurance Company, is on a contributory basis, employer and employee paying the premiums. Each female employee, who contributes to the plan, receives $500 life insurance protection and, in the event of illness or non-occupational injury, $5 a week for a maximum of 26 consecutive weeks. A contributing male employee receives $1,000 life insurance protection and $7.50 weekly sickness or non-occupational accident benefit. Special class employees and executives are insured under a special arrangement. Supplementing the actual insurance features of the program, which contain a total and permanent disability clause, there are certain service advantages.

Plans for the establishment of a large additional dyeing unit are being considered by Stuart W. Cramer, of Cramerton Mills, Inc., Cramerton, N. C., according to report.

The Belmont Fabric Company has been organized to weave the spinning waste from the group of fine yarn mills at Belmont, N. C. A. C. Lineberger is president, with Henry and D. E. Rhyne as other officials. The company will construct Belmont's first weaving mill.

At Concord, N. C., the Locke Cotton Mills Company are to have a new boiler house, and new humidifying equipment in two weave rooms. The Gibson Manufacturing Company is erecting a new office building, and a new yarn conditioning room is being installed by the White-Parks Mills Company.

The Cannon Manufacturing Company, Kannapolis, N. C., have installed the Finnell system of electric scrubbing, furnished by Finnell System, Inc., Hannibal, Missouri. The company's own construction department is progressing with the new weave shed which is being erected.

Cross Cotton Mills Co., Marion, N. C., have let contract to Michael & Bivens, Inc., Gastonia, N. C., for the installation of electrical equipment, including generators, switchboards, motors and village lighting.

It is reported that 25 new cottages will be added to the mill village of the Rowan Cotton Mills Company, at Salisbury, N. C.

Dilling Cotton Mills, Kings Mountain, N. C., are to erect a weave shed, for the manufacture of novelties. The building will be one story, 135x100 feet, and the initial equipment will consist of 150 looms, according to report.

Cornelius Cotton Mills, Cornelius, N. C., have installed 160 Nordray looms, furnished by the Hopedale Manufacturing Co., Milford, Mass.

Stuart Mills, Charlotte, N. C., recently organized by W. R. Taliaferro, Jr., and others, have leased the plant of the old Belbro Mills. They will have fifty looms for manufacturing fancy silk dress goods, and silk and cotton mixtures.

Aberfoyle Manufacturing Company, Chester, Pa., is considering the location of a mercerizing plant in North Carolina, according to a rumor.

Osage Manufacturing Company, Bessemer City, N. C., have installed a new Saco-Lowell horizontal cleaner, it is announced.

The Glenn-Lowry plant of the Aragon-Baldwin Mills, at Whitmire, S. C., have extensive improvements under way, including the installation of a Barber-Colman spooler and warper and 200 Draper looms, and the construction of fifty new houses in the village.

The Wadsworth Mills, Spartanburg, S. C., have been chartered and will take over the defunct Spartanburg County Mills property. George Norwood, of Greenville, S. C., is the principal incorporator.

The Lancaster Cotton Mills, Lancaster, S. C., are gradually changing their weaving department from belt drive to motor drive.

Contract has been awarded to J. Archie Willis & Co., by the Judson Mills, Greenville, S. C., for the erection of 50 dwellings adjacent to the auxiliary plant of the company, which was formerly the plant of the Shambow Shuttle Co. The dwellings will cost about $65,000, and will be equipped with modern electrical and plumbing fixtures.

The capital stock of the Beaumont Manufacturing Co., at Spartanburg, S. C., has been increased from $400,000 to $600,000.

Work of re-vamping and doubling the plant of the Cochran Cotton Mills Company at Hawkinsville, Ga., is proceeding. The mill is being equipped with electric drive, throughout, and a steam plant installed. Automatic looms will be installed later, it is stated. Contract for the humidifying system has been placed with the American Moistening Company.

The mill at Elberton, Ga., has been taken over by Frank W. Van Ness and associates, of New York, and will be operated as the Beaver Cotton Mills. Frank Shinn is manager.

New twisters and looms have been added to the equipment of the Western Reserve Cotton Mill plant at Millen, Ga

The Marietta Cotton Mills, Marietta, Ga., recently purchased by the Atlanta Cotton Products Company, will in the future be known as the Willinea Cotton Mills.

A new steam plant will be erected at the Pepperton Cotton Mills, Jackson, Ga., under the direction of Lockwood, Greene & Company, engineers.

A syndicate of North Carolina men have purchased a tract of land in South Jacksonville, Florida, where, it is understood, a mill of 20,000 spindles with complimentary looms will be erected. B. H. Hamilton, of Raleigh, N. C., is president of the new corporation, known as the Hamilton Mfg. Co. John H. Rutledge, of Kannapolis, N. C., will be vice-president; and H. G. Smoot, of Salisbury, N. C., secretary and treasurer.

The Franklin Process Company, of Providence, R. I. and Greenville, S. C., are contemplating the erection of a subsidiary plant near Chattanooga, Tenn., according to a report, which states that J. E. Sirrine & Company, Greenville, S. C., and Chattanooga, Tenn., have charge of the plans.

The Marcella Cotton Mills, at Eufaula, Ala., have been sold to William A. Smith, of Atlanta, by W. G. Broadfoot, trustee in bankruptcy, who was formerly president of the mills, which went into bankruptcy some months ago.

The Boston Jobber
got his goods promptly,
—thanks to KAUMAGRAPHS

A story about a Chicago jobber—

A SOUTHERN hosiery mill had built up a large reserve stock of hosiery bearing the Kaumagraph-applied trademark of a Chicago customer.

One day a Boston jobber wired the mill for three cases of the same kind of hosiery, bearing his own private brand mark.

But there was no unbranded hosiery in stock to fill the order as the machines were running on another style.

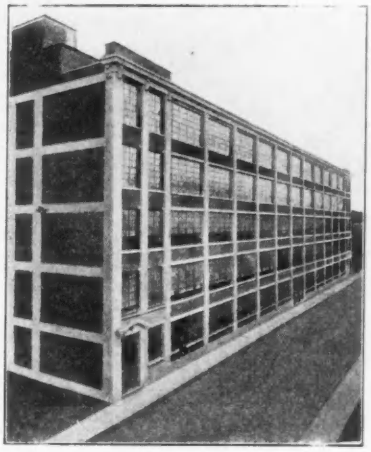
But the mill executive was prepared for just such emergencies. Owing to the occasional need for switching brands, he had always marked this grade of hose with **removable** Kaumagraph transfers, which are easy to eradicate, just as the permanent Kaumagraph transfers are hard to remove.

Inside of two days, the Chicago customer's Kaumagraph mark had been removed from three cases of hose, and the Boston jobber's trademark applied to the same hose with Kaumagraph transfers. The shipment went out on time, and in the course of a few days the mill received a letter from the Boston jobber complimenting them on the amazing promptness with which they had met his order.

Made to Meet Particular Situations

The fact that you can do a thing like this with Kaumagraphs is one of their most valuable features. Scarcely less important than the method itself is the **variety** in the character, in the permanency, in the adaptability of the Kaumagraph way.

Our ability to meet the situation—your situation—explains why practically every hosiery manufacturer of consequence in this country, marks his goods with Kaumagraphs. Owing to the ease of application, to the beauty of the mark itself, the Kaumagraph method would be the preferred way of marking hose even if this adaptability were lacking.



—a southern cotton mill

But Kaumagraphs are made to meet particular situations. For marking hosiery, there are three degrees of fastness: "fugitive," easily taken off; "regular," disappearing after one washing; "permanent," lasting the life of the hose.

Every other form of marking hose: ink stamping, the decalcomania wet transfer, and the gummed label, has certain disadvantages. The Kaumagraph Dry Transfer overcomes the disadvantages of every one of these.

It is simpler—only one operation is required. It is faster—girls average eighty dozen pairs an hour. On the selvage of textiles it is applied by machine.

—and a Boston wholesaler.

When may we confer with you regarding the use of Kaumagraphs in your business? We will gladly furnish without obligation, any information you may want.

Now—Lithographic Service, Too!

Now manufacturers can buy their trade-mark transfers and lithographic work together. For Kaumagraph now has a large department devoted exclusively to hosiery packing, dry goods labels, etc. We would be proud to show you samples of some of this work.

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(Check items desired)
( ) Send full information regarding Kaumagraph Dry Transfers.
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C 7-25

W. G. Clarkson, Fort Worth, Texas, is reported to be preparing plans for the new Fort Worth Mills, which include the construction of a three-story reinforced concrete mill building to cost approximately $475,000.

The Galvez Cotton Mills, Galveston, Texas, have been organized, and it is understood that machinery from the Nobska Spinning Company, at Taunton, Mass., will be removed to Galveston into a building to be constructed for the purpose.

The first unit of sixty houses in the industrial housing project of the Borden Mills, at Kingsport, Tenn., recently was completed. A total of 400 dwellings is planned to provide for the operatives required as the mill is expanded during the next four or five years, in which time it is expected, according to report, to move further equipment from Fall River, Mass.

The New England Mill Situation.

Cotton mill production in New England is being curtailed sharply in many of the large mills. The largest curtailment is seen in Massachusetts where the operation of a 48-hour law is having a crippling effect upon mills in a highly competitive period, like the present one. In Fall River about 50 per cent capacity is being worked. Several of the print cloth yarn mills are shut down, including the Stafford, Flint, Arkwright, Seaconnet and some others. The fine goods mills in that city are running in full, including the King Philip, Charlton, Davis, Parker, Lincoln, and Granite. The American Printing Company's print works and mills are running in full, the print works doing the largest business in its history. It is printing large quantities of pongees, fine count English prints, broadcloths, and other fine goods, as well as a large run of percales, and narrow prints for export.

In New Bedford, the center of the fine combed yarn industry in this country, operations average 80 per cent capacity. Mills in Lowell, Lawrence and other New England centers of large population are not doing as well as the mills located in the smaller places. In Maine the mills are running to 75 per cent average capacity, some mills running in full while others have considerable machinery shut down. In New Hampshire, the Amoskeag Company is operating about 70 per cent capacity, while some mills in other New Hampshire centers are running less. In Rhode Island, mill operations are very much better than they were a year ago. Many mills there are running on fancies in rayon, silk mixtures, and other specialties. In Connecticut there is less idle time reported than elsewhere, as many of the cotton mills no longer make all cotton goods. Some are running on silk and cottons exclusively.

The labor situation among textile operatives in New England shows little change. The strike that has been going on in the Willimantic mill of the American Thread Company is still in progress after an eleven weeks' struggle. Last week the authorities of the corporation ordered striking mill operatives to vacate the tenements in which they lived. Ejectment suits were brought against them. The unions are providing tents in which the strikers are living, land for the purpose having been secured just outside the town limits proper. The authorities believe that with the strikers away from the center of the town they will be able to bring in new operatives and install them in the houses made vacant by the strikers. In fact, in this connection, some 400 new operatives have been placed at work in Willimantic by the company to replace the ejected strikers, and it is believed that it will be only a short time before the portions of the plant which the company desires run will be in full operation. Since the strike, it is learned, the company has started three winding plants in New York City and a finishing plant at Mount Kisco, N. Y.

It was stated in these columns last month that feeling against the corporation, since the strike, has run high due, in part, "to the foreign ownership of the concern;" that "it is a part of the big thread combine in England"; and that it operates mills in Newark, among other places. These statements were erroneous, as the corporation is American-controlled, and has no interest in mills at Newark. The possible inference that the American Thread Company alone reduced wages, bringing on the strike in their own plants, should be dissipated, as this company, in line with New Bedford and other plants, effected a 10 per cent reduction in January, and there was no trouble until March, when the operatives became dissatisfied.

There was another strike in a Connecticut mill, among some weavers. Soon after it was inaugurated, the owners began removing the looms to a mill property owned by them in New Jersey. The Connecticut mill will be closed. While there is more or less union agitation going on, the workers are generally maintaining peace. A short time ago the Fall River unions changed their rules so that in the event of a general strike vote being taken, the result will depend upon the majority of union members voting in each union, the total to be accepted as the voice of the strikers. Under the old rule, if two unions voted no strike, and three unions voted strike, a Textile Council had power to postpone action. The new method is supposed to be more democratic but it can readily be seen that numbers in a single large union may easily overcome the objections to strikes raised by a small union of highly skilled people. No general strike is in sight but it is the policy of the unions to go on making new rules, and provisions of various sorts, when all appears to be at peace. Union membership has been falling since mill curtailment has been increasing.

The finishing industry has only been partially employed for some time. The opportunities for work have been lessened greatly by the lack of demand for staple cloths. Bleached goods are not in active demand and several of the bleacheries have found difficulty in maintaining more than a 60 per cent working average. The lack of demand for piece dyed goods, such as sulphur blacks, fast blacks, and many of the khaki dyed fabrics, has caused very serious idleness in the plants devoted to that work. The large corporation printers in New England, such as the American, Arnold, Windsor, and others, have been exceedingly active. This is due in large part to the fact that they have varied their output to meet the demand for high colors and new designs not formerly engraved in a large way by the corporations. The prices at which the corporations have accepted business has enabled them to sell their output very freely and at the same time, it has served to check the enterprise of converters who buy gray cloths and have job finishing plants convert to their account.

While there have been very large sales of printed goods this year, the prices at which goods have been disposed of have not netted large profits. But the printers are doing very much better than they did last year especially on the

Aluminum Paint

—the new mill-wall finish that is kind to operatives' eyes

[*ALUMINUM PAINT consists of Aluminum Bronze Powder properly blended with a vehicle of oil or varnish*]

THE trend toward lighter-colored mill-walls has a sound basis. Yet perhaps it has been carried too far.

White walls are trying on your operatives' eyes.

Aluminum Painted walls reflect a softened light that does not irritate the eyes.

This is so because Aluminum Paint gives a smooth surface with a *soft lustre.*

Aluminum Paint is made of thin flakes of pure aluminum.

These flakes "leaf" together when the Paint is applied.

This forms a cheery, silver-gray coat that takes the harsh glint out of reflected light.

Aluminum Paint is clean and sanitary. Being smooth and non-porous, it is easy to keep clean.

Air, gas or fumes have little effect upon its lustre.

Yet this better paint for mill-walls costs no more—first or last—than ordinary paint.

And a gallon of Aluminum Paint covers from 400 to 700 square feet, varying with the material and character of the surface.

A single coat completely hides every trace of the original wall color.

Let Aluminum Paint improve the lighting in *your* mill.

Tell your secretary to write us today for our booklet—"Aluminum Paint."

It is full of interesting facts about this modern paint for the modern factory.

We'll be glad to send you a copy and samples of Aluminum Bronze Powder postpaid.

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novelty products. There has been a very large business done on striped broadcloths for the cutting and jobbing trades. Recently there has been an active call for printed floral voiles and the run on them has been large. Cotton and silk mixtures have been printed in large volume. The business done on staple and semi-staple percales and light weight piece dyed goods has been limited. On the other hand, where printers have imposed small patterns on tinted grounds on fine count print cloths, or fine yarn sateens, pongees, or similar fabrics, the business has been very satisfactory in volume.

Printed and woven shirtings have been doing much better this year than last and a number of mills have booked a fair business on the better grades of fancy madras, silk filled goods, and some of the extreme novelties. The printed shirting business with the large corporations is distinctly good, many of the colors now used being fast and eminently satisfactory to the trade.

New England mills are experimenting constantly on new materials made partly of rayon. Others are doing new work constantly in cotton and silk mixtures. Some of the Connecticut and New Bedford mills are running a large part of their plants on silk mixtures of various sorts. The canton crepes, tub silks, and fine plain crepes in cotton and silk have sold very well in the finished state and new orders for the coming season have begun to come along.

The extremely hot weather in the first week of June came in time to start the wash goods business going at a rapid rate and that in turn has helped New England mills greatly. They produced for the current season a wide variety of novelties for dress and lingerie wear and until weather conditions forced consumers to buy liberally there was much questioning as to whether the market would absorb many of the products to the extent desired. Events have shown that the public is quite ready to pay all that is asked for cotton and silk, rayon, and other mixed goods, and many of the fine cottons, or costly prints, but is indifferent toward the styles of fabrics that were formerly popular. Ginghams are in this latter case. Although New England ginghams for the current season are the best in design and quality ever produced, the demand for them has been small. Recently there has been some improvement in the call for fine tissues, yarn dyed open weaves in fancies, and for whatever striped or bordered ginghams that were to be had. But the checks and ordinary patterns have been dull.

There have been several conferences held throughout New England during the past month concerning curtailment of production and a greater degree of cooperation in the cotton industry. Some have been attended by Senator Butler, himself a cotton manufacturer, and others have been attended by other representatives of the National Council of Cotton Manufacturers. While the conferences have been in the nature of get-together affairs in part, there has been considerable discussion concerning plans to meet the new conditions of merchandising and manufacturing that have been forced upon mill owners through highly organized labor, extremely well organized store systems that regulate the time and character of buying, and particularly the new form of organization manifested in centralized purchasing agencies, combinations of bag and tire manufacturers, etc.

Measured against the modern systems of doing business, the cotton industry is at the mercy of buyers and middlemen. The planter is organizing to protect himself against the vicious speculation that is tolerated. Some of the mills are drifting into large commission houses that are organizing special selling forces and great advertising campaigns. The day of the individual mill owner strong enough to produce cheaply and sell with the skill of a merchant appears to be passing. The need for cooperation is stated to be growing. Since the Supreme Court modified its rulings on what constitutes a violation of the Sherman Law there has arisen again a demand among cotton manufacturers that associations shall be formed to collect and disseminate accurate trade information as to production, stocks, and sales, and to place individuals in a position where they may form sounder judgments upon the actual market and manufacturing conditions prevailing. As stated, New England is talking these things over very seriously, and perhaps within a month some very important developments may come to light.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, June 10th, 1925.

Influenced by the high average of the condition of the crop, as of May 25th, per the government report of June 2nd, private large acreage estimates, and recent beneficial rains in scattered localities of the interior, the tendency of market has been to a lower level, although good support was encountered below the 22 cent level for new crop deliveries.

Returns to the government, as of May 25th, averaged the condition of the crop at 76.6 vs. 65.6 on corresponding date last year and the 10-year average of 72.0. Texas figuring 70 vs. 66 and 72 respectively.

In the annual revision, Washington made last year's acreage planted to cotton 42,641,000 acres against their December estimate of 41,490,000, of which 41,360,000 were picked.

The government will not make an estimate on this year's cotton acreage until July 2nd, but private returns indicate an average increase of about 5½ per cent, or a total acreage this year of about 45,000,000.

The sustaining feature of the market in the face of the government's high condition report, and reported large increase in the acreage and in use of fertilizer, is the claim of insufficient moisture in Texas, especially in the southern half of the State, and prospects of spinners of the world taking nearly all of last year's crop this season, which will serve to keep the world's carry-over of American cotton at the end of July at a dangerously low level ,making apparent the necessity of another large crop this year for next season's requirements.

Compared with last season, spinners of the world took 13,111,000 bales of American cotton to June 5th, against 10,292,000 to corresponding date last season, making it likely for the total for the whole season to exceed 14,000,000 bales vs. only 11,042,000 for the whole of last season.

Until the arrival of the recent scattered light to moderate rains in South Texas, the crop situation in that section was reported as serious, and central Texas was not much better off, due to the want of moisture. As yet south Texas, except in spots, is without sufficient rain, and no rain of consequence has occurred so far in central Texas, but east,

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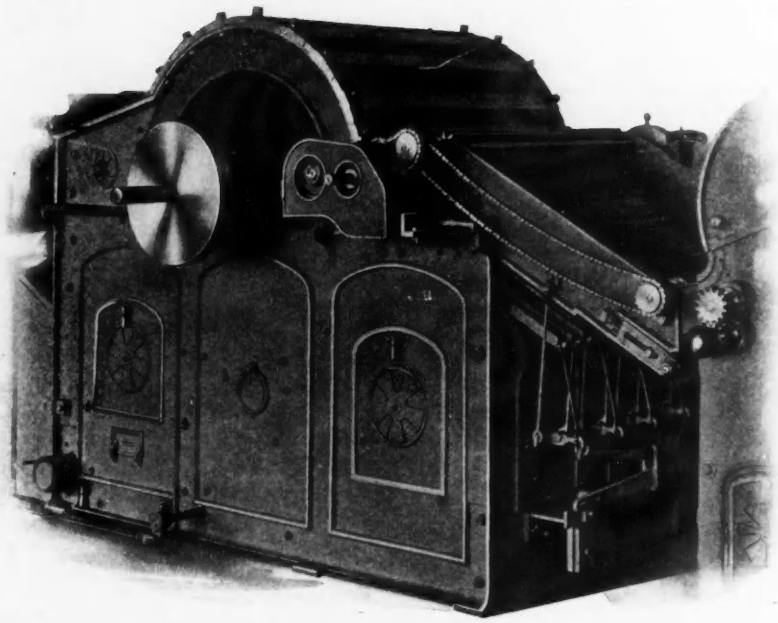

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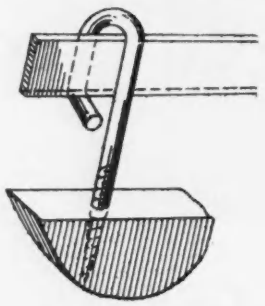
north and western Texas appears to be making satisfactory progress, having received moisture sufficient for the present.

It is evident, therefore, that the growing crop will have to be provided with alternating heavy rains, at intervals of about one to two weeks, particularly during the usual hot months of July and August, to permit of satisfactory results, especially in Texas, where, in the southern portion, loss of vitality of the plant is reported already, which is unusual at so early a date, even in a drouth year, but a wet summer is usually productive of weevil activity.

An Effective Harness Lock.

A simple and effective harness lock hook has been brought out by the Tite-Lock Harness Hook Co., P. O. Box 189, Fall River, Mass., the purpose of which is to firmly lock the heddle or harness shaft in the frame and thus prevent vibration in any direction.

The application of the hook will be evident from an examination of the accompanying drawing, which shows the hook in place holding the lower harness shaft to the frame. The new feature of this locking screw hook is that it is looped over on itself to form the hook portion, while the extreme end of the downwardly extending portion is bent at approximately right angles to itself, and then is



bent obliquely to the hook, at about a 45-degree angle. This forms the locking lug or tit. This lug, it is noticed, is bent in the opposite direction to the advance of the right-hand thread.

In placing the shaft in the frame, the locking screw hook is threaded the desired amount into the frame until the locking lug is approximately parallel to the side bar of the frame. As indicated, there is a space between the stem and the lug of the hook, and the heddle shaft is lifted up and inserted vertically through this space, and the hook is partially unscrewed, which forces the locking lug across the heddle shaft and encloses it completely. This, it is pointed out, protects the shaft from vertical or up-and-down vibration.

When lateral or sidewise vibration occurs sufficiently to cause the shaft to turn the hook, this may be done until the looped hook reaches a dead center line where it will stop, as the horizontal vibrative force will bear outwards against the downwardly projecting side at right angles to the shaft. When this point is reached, the locking lug of the hook will still function, as it is bent obliquely to the looped portion. This is why this locking end is bent in an opposite direction to the direction of the thread.

The advantages pointed out for this hook, known as the "Tite-lock" harness hook, are those stated to result from the elimination of vibration, such as the reduction of smashes, seconds, worry and discontent, and saving in time, labor, loom stoppage and re-drawing. One of these hooks used in the center for each of the side bars of the frame is said to be usually sufficient, and when desired the regular type of hook may be used to assist in preventing horizontal vibration. The hook is especially useful in fancy weaving, it is pointed out, where harness smashes, broken selvages and other defects are more commonly experienced.

A Textile Products Exhibit.

A new idea in textile exhibitions was conceived and successfully developed by the Eastern Connecticut Mills Association, which is composed of the operating executives of the mills in the eastern part of Connecticut. This association staged a textile products exhibit in the City Armory, at Danielson, Conn., on June 11th, 12th, and 13th, which was a success in every way.

One purpose of the display was to acquaint the general public of the territory with the wide variety of cotton and other fabrics being produced in the mills in their own localities, and to induce a more widespread interest in and use of these materials. Large crowds visited the exhibit during the time of its progress, over 3,000 paid admissions being reported.

The Association, which sponsored the exhibit, was organized in November, 1922, with Louis M. Carpenter, assistant treasurer and agent of the Ashland Cotton Company, Jewett City, Conn., as the first president, he being succeeded by Harry Richardson, agent, Aldrich Brothers Company, Moosup, Conn., and Norman Parkhurst, of the Ninigret Company, Jewett City, Conn., the incumbent president, succeeded Mr. Richardson. The body has grown remarkably since its inception, and the Danielson exhibit is a reflection of the energy and activity of the organization.

The exhibit was formally opened on Thursday, June 11th, with interesting ceremonies. Warden Walter Anderson, of Danielson, presented the keys of the borough to President Parkhurst. Hon. E. L. Darbie, speaker of the Connecticut House of Representatives, acted as master of ceremonies. Short speeches were made by E. Kent Hubbard, president of the Connecticut Manufacturers' Association, L. M. Carpenter, Ezra Dixon, president, Southern New England Textile Club, Roy C. Norman, president of the National Association of Textile Dyers and Finishers, George C. Dunn, secretary, Blackstone Valley Mills Association, Frederic L. Babcock, editor of "Fibre & Fabric," and H. C. Meserve, secretary, National Association of Cotton Manufacturers.

The exhibits included both textile fabrics and textile machinery and equipment, with the former predominating. Among the mills which maintained displays were: Ashland Cotton Co., Jewett City; Ponemah Mills, Taftville; Quinebaug Co., Danielson; Wauregan (Conn.) Co.; Assawaga Co., Dayville; Grosvenor Dale Co., North Grosvenor Dale; Aldrich Brothers Co., Moosup; Paco Mfg. Co., Danielson; Lawton Mills Corp., Plainfield; Westfield Textile Co., Danielson; Killingly Worsted Mills, Danielson; Foyd Cranska Co., Moosup; Powdrel & Alexander, Inc., Putnam; Whitestone Mills, Killingly; Moosup Mills, Moosup; Central Worsted Co., Central Village; Lorraine Mfg. Co., Westerly and Pawtucket; and Farnsworth Mills, Inc., Central Village.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

W. W. BALLEW has been appointed manager of the Georgia branch, Westinghouse Electric and Manufacturing Co., with headquarters at the Westinghouse Building, 426 Marietta, St., Atlanta, Ga. This is the climax of three promotions which Mr. Ballew has received within the last 18 months. Immediately after graduating from the Georgia School of Technology in 1915, Mr. Ballew entered the Graduate Students' Course at the East Pittsburgh factory of the Westinghouse Company. After finishing this course he was employed in the railway lighting department which was the old name for the power department. From there he was transferred to the light traction division of the railway department, and came to Atlanta in 1919 as electric railway specialist. In 1923 he was made manager of the transportation division in the Atlanta district office, having the sales direction of the steam and electric railway activities of the company. In 1924 he took over the management of the central station division in charge of the sales of power and supply apparatus. When the eight states under the Atlanta district were subdivided and branch offices of the district established, Mr. Ballew was made manager of the Georgia branch. In this position his activities are concentrated in the state of Georgia, but his supervision is extended to include all of the company's lines, and he directs the sales to all customers in the state. H. A. Coles is the district manager of the southern district for the company, with headquarters in Atlanta.

ERNEST L. MORRILL has resigned as agent of the Pepperell Manufacturing Company, Biddeford, Maine.

H. R. WHITEHEAD has been made agent of the Pepperell Manufacturing Company, Biddeford, Maine, succeeding Mr. Morrill. Mr. Whitehead was formerly vice-president and general manager of the three mills controlled by the Mason Tire & Rubber Company, at Quitman and Millen, Ga. He was at one time superintendent of the Salmon Falls Manufacturing Company, Salmon Falls, N. H.

R. SINGLETON COOK has been appointed agent of the new mill of the Pepperell Manufacturing Co., under construction at Opelika, Ala. He has been connected with the Shawmut (Ala.) Mill of the West Point Manufacturing Company.

FRED FORSTER, southern agent of the Draper Corporation, with headquarters in Atlanta, in company with Mrs. Forster, sailed from Quebec on June 10th, on the Empress of Scotland, for an extended trip to England, France, Spain, Germany and Italy.

W. L. STEPHENS, formerly overseer of weaving at the Beaver-Lois Mills, Douglasville, Ga., and more recently cloth room overseer at the Arkwright Mills, Spartanburg, S. C., has become overseer of weaving at the Covington (Ga.) Mills succeeding R. A. Burt.

JAMES T. BROADBENT, who on May 12th, became president of the Standard Textile Products Company, was honor guest at a dinner and theatre party given by Alvin Hunsicker, retiring president and new chairman of the board of the company.

WILLIAM R. MOORHOUSE has been made assistant sales manager in charge of problems of dye application, National Aniline & Chemical Co., Inc. He has been manager of the Boston branch, and has served the dyestuff trade in New England for 22 years. His new location will be at the general offices of the company, 40 Rector St., New York City.

WALTER C. LINEBERGER, formerly second hand in spinning at the Dunn Manufacturing Co., Gastonia, N. C., has been promoted to night overseer of spinning at that mill.

E. G. WAITS is now superintendent of the Joanna Cotton Mills, Goldville, S. C., succeeding T. N. Crocker, resigned. Mr. Waits was formerly overseer of carding at the Oakland Cotton Mills, Newberry, S. C.

J. F. MCCONNELL has been promoted to second hand of spinning at the No. 1 Mill of the Chadwick-Hoskins Company, Charlotte, N. C.

JOHN J. WEEKS, mechanical engineer, formerly with Parks-Cramer Co., is now connected with Charles M. Setzer, manufacturers' representative, power plant specialties, 715 Realty Building, Charlotte, N. C.

E. N. TART has been promoted to assistant superintendent of the Bradley Mfg. Company, Columbus, Ga. He was formerly overseer of spinning. C. M. Hill succeeds him in this position.

B. S. SIZEMORE has been promoted to overseer of spinning at the Sibley Manufacturing Company, Augusta, Ga.

ELLIOTT A. ALLEN has been appointed district manager of sales for The Timken Roller Bearing Company, in their New England territory, with office at 1107 Commonwealth Ave., Boston, Mass.

E. N. MAYFIELD has resigned as overseer of weaving at the Griffin (Ga.) Manufacturing Company.

H. E. BATES recently resigned as superintendent of the Deep River Mills, Randleman, N. C., being succeeded by J. W. McElhannon, who has been superintendent of the Holt-Granite-Puritan Mills, Fayetteville, N. C.

E. M. SPRY has been promoted from overseer of weaving to superintendent at the Holt-Granite-Puritan Mills, Fayetteville, N. C., succeeding Mr. McElhannon. A. B. Jackson has been promoted to succeed Mr. Spry as overseer of weaving.

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AN OLD TIMER SAYS

In my lifetime I have taken a little whack at studying ancient history, at studying commercial law, at studying mathematics, at studying textiles from A to Israel, and I've had lots of fun with all of them. But the study that has got my goat more than any other one thing is the study of a *man*, a human being.

In most all the things a person may study he can generally find some way to reason the thing out, so to speak—some way to form a more or less definite opinion in his own mind.

But when it comes to studying man—to attempting to reason out why he does this or why he doesn't do that, why he will act sometimes as though he just has his head bent on "cutting off his nose to spite his face"—well, I get all balled up and change off by reading the Saturday Evening Post or some other piece of high (?) literature.

Some big writer once said that "Some fellows were just naturally born to run second," but my personal opinion is that he missed it by a city block.

Ability or success is no more born into a man than a taste for beer is born into a man. I don't suppose the man ever lived who really *liked* beer the first time he tasted it, do you?

Now, of course, "Old Timer" has never had an opportunity to study many men except the kind overseers and superintendents are made of, but he does believe that they are human beings, just about like the rest of the men in the world, and that what applies to them in their work also applies to the majority of other men in other lines of work. Oh, yes, I have had some opportunity of studying a few Editors in my time—but I was referring to *human beings!*

As I have stated, ability is not necessarily born in a man. Ability isn't a gift. It is usually acquired by making a true study of yourself. In the majority of cases the thing which keeps a man down is self-conceit. When he thinks he knows it all he quits learning. If you will look around a little among your acquaintances you will see that more overseers and superintendents fail after they think they are at the "top of the ladder," than while they are "going up."

as a matter of fact, so far as the *real* top of the ladder" is concerned, there isn't any such animal. There is really no top to any man's ladder. Just look at Ford, for example. Most any fellow would think that if he had so darn much money he could not possibly spend it all, if he did nothing else, that he was about at the "top."

But Henry Ford is only getting a good start. He is not only expanding his automobile industry to practically every civilized country on the globe, but he is going into the airship business. Today's paper told of his first all-metal plane carrying one thousand pounds of auto supplies to Chicago.

You watch Henry's dust!

Yes, and thank the Lord we have some overseers and superintendents who are made of the same kind of "mud" that Ford is made of—they are up and doing every minute of their natural lives; they are never satisfied unless they are learning something about the textile business or making improvements in what we already have. The successful overseer or superintendent realizes that *alone* he cannot go very far, but with the help of all the people he deals with there is no limit to what he can accomplish. He realizes too that he himself must play the leading role in any advancement which comes to him.

Then it is up to you and to me, brother, to learn how to get *cooperation and loyalty* from and with our employees and employers.

Those are two of the biggest words in the English language. The strange fact is that we must get them going and coming, so to speak. We must get them from the people who work *for* us and also from the people we work *for*.

No overseer or superintendent can run a room or a mill by himself—he can only do his part—only cooperation and loyalty from all concerned will bring full success.

If the average overseer and superintendent could only wake up to the fact that a man can practically make of himself what he wants to be, by constant application and study—they would step on the gas.

So many fellows seem to think "I can't" when they don't really know that the only thing that is wrong with them is a good old-fashioned case of laziness.

If a man has it in his heart to be loyal and can once find out what real cooperation means, and practice it, then the third thing for him to acquire is *tenacity*—which is the courage, the backbone, to keep everlastingly at it, to keep on running the job like he did the first few months after they gave it to him. (But so few of us do that!)

Then he will be getting into his system what the Boss calls ability.

After all, I suppose, I will have to admit that ability is a gift, but not a gift in the way most men think it is.

You, Mr. Overseer, Mr. Superintendent, can *give yourself* ability. And nobody else in the world but *you* can do it.

Suppose you make up your mind to swap off a big hunk of that laziness for some loyalty, cooperation, and tenacity—which is the faculty of having sense enough to keep on running the job like you did the first day you took it—and the first thing you know the Boss will be saying: "That man has the *ability* to do anything he undertakes."

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Our Booklet, *"Good Will and Its Valuation,"* tells just what Good Will is, the many ways in which it affects business, its influence on security prices, its relation to tangible assets, and how it may be appraised.

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Appearing first as an article by Mr. A. C. Ernst in Printers' Ink, *"Good Will and Its Valuation"* aroused such wide interest as to warrant its publication in booklet form. A second edition of this booklet is now off the press, and copies will be mailed to business executives on request. Address nearest office.

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

The Use of the Hank Clock in Spinning.

EDITOR COTTON:

We are anticipating equipping our spinning frames with hank clocks, and would like to have the readers of "How Other Men Manage" give their ideas as to the benefits derived from running spinning by the hank.

What is the best plan regarding the arrangement of the spinners, running around the frames or one side of each frame?

Is it best to have a different price per hank for each number of yarn?

Which of the operatives in the spinning room should and should not be paid by the hank?

Which plan gives more satisfactory results—running the spinning by the hank or by the old plan of paying by the side?

Would it be practical to pay the overseer and his assistants by the hank? H. K. (N. C.)

A Result of Practical Discussion.

EDITOR COTTON:

In reading COTTON from cover to cover, advertisements included—for they are intended to be read—we get a good deal of information. Also, apparently, some mis-information. I would emphasize the word *apparently* because I think it only seems to be mis-information.

In reading, in the May issue, the report of the Georgia operating executives convention in Atlanta, there were many points brought out in discussions for and against almost every idea propounded before that assembly. The courage of the southern mill man in placing before his fellow mill-men his method or methods of cotton manufacturing in each of the departments, and placing himself open to all kinds of criticism, is in itself refreshing. There are so many men who follow the trade each with a different method of application, that it makes very interesting reading. It also presents to the student many phases for study, because these same men are all successful executives. It proves also that there are many ways to a successful achievement.

The most interesting discussion at this meeting was the use of oil in the preparation of raw cotton, this oil being sprayed at the opener hopper. This is surely an advance in research, although I imagine there are many problems connected with it that have yet to be overcome, although it was asserted that some mills have been using it for over a year. We might raise the question again, "Why not oil?" Cotton has an oily or waxy nature and it is surely feasible that more of this oily or waxy substance added to it might prove beneficial, in the same way that spraying the cotton with water, as we do through humidifiers, thus assisting nature in quenching the cotton of its great thirst. I also think that more oil than is at present in the cotton would assist the water in penetrating the fibers. "Wash" might be able to give the readers of COTTON, from his wide experience, his opinion of this revolutionary departure in the preparation of the cotton fiber.

Another question at this meeting was the brushing of cards, and the replies of two of the men almost non-plussed me. One man said he had not had a roller brush on his cards in ten years, while another man stated he brushed his cards every two weeks. Of course there must be a reason. Why? If some of them would tell us why, it would be of enlightenment to many of us.

One more question which was fully discussed was the correct circle of traveler. The opinions differed in the extreme. My understanding of the circle of a traveler is that the circle should not be so large as to allow large slugs to pass through; but that it must of necessity be large enough to avert excessive friction with the ring.

I next passed on to "Old Timer." What a fund of wise thought he must have secreted in his storehouse of wisdom. His efforts to convey these same thoughts to us in the form of editorials are surely worthy of much praise. While we may question much of his philosophy, if we follow him in general principle we can profit from this "Old Sage"—if he will pardon me for so naming him.

CHRISTY (MASS.)

Unweighted Top Rolls in Spinning.

EDITOR COTTON:

I note with a great deal of interest what "Contributor No. 642" has to say in the May issue of COTTON, regarding the use of unweighted top rolls on spinning frames, that is, the middle roll. Some time ago I tried unweighted middle top rolls on two frames, but we could not clean the rolls without stopping the frames, and when we started them up afterwards we had quite a bit of bad yarn to come through, resulting from moving these unweighted rolls.

I would like to know how "Contributor No. 642" manages his cleaning, and when and how he does it. We clean —or "pick"—the top rolls every day, and if we had to

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We are eager to have you get in touch with any mill having a Termaco installation and learn of the many savings the Termaco has effected for it.

Just drop us a line and we will let you know the nearest mill to you which cleans roving bobbins by the Termaco method. Or, if you prefer, our Engineering Department will figure for you the many substantial, annual savings you can effect in your own mill with a Termaco.

Please ask your secretary right now, while the matter is on your mind, to write us.

Engineering Department

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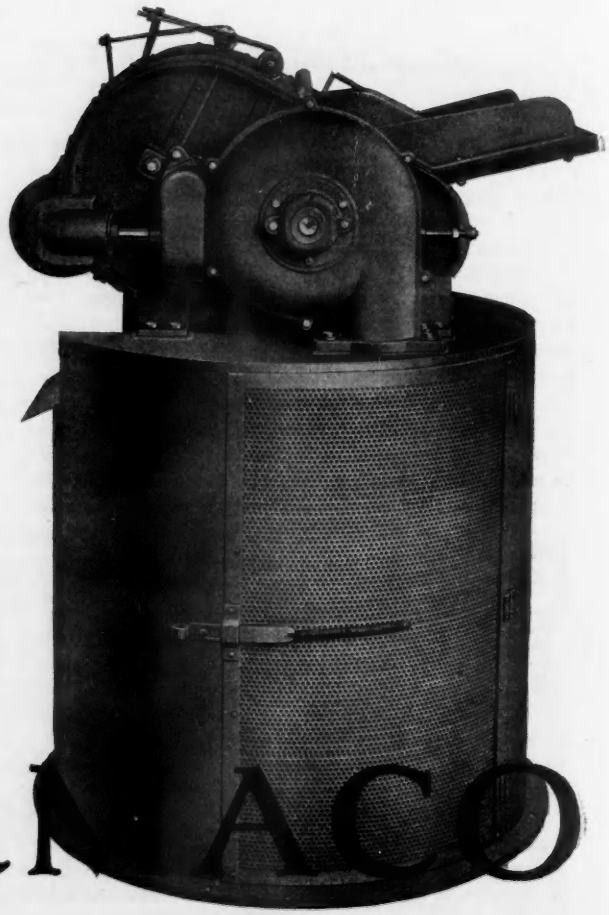


The TERMACO

stop the frame every time and have bad work as well, where would there be any benefit; would the difference gained be sufficient to warrant the change? "Contributor No. 642" does not state specifically what he gains by using them. He says they are good, but in what way? If he doesn't mind, we would like to have him explain this gain in detail, as well as the method of cleaning, as indicated.

CONTRIBUTOR No. 14.

Stripping a Roller and Clearer Card.

EDITOR COTTON:

I would like to get some information as to what are the correct speeds for the fancy on a roller and clearer card. I should like to see an article dealing with the roller and clearer card, its settings, and the counts of wire for dealing with very short fibers for making coarse cotton blankets. My own experience is the difficulty in stripping, as I find the wire becomes so choked up as to make stripping a very difficult problem, and I am experimenting with the speeds of the fancy in an endeavor to overcome this. I might add, however, that I am certain the count of wire is far too fine, as I have an 80 on the cylinder.

CONTRIBUTOR No. 454.

Some Suggestions on Slashing.

EDITOR COTTON:

This letter is about slashing, but don't stop reading it on that account, for I really believe I have stumbled across an idea that will be worth something if it can be worked out.

I was visiting a mill the other day where a temperature device expert was experimenting with cooking the size. His purpose was to point out the necessity for a modern system of temperature regulation which he was installing, but some of the things he did gave me some ideas that are working out at a saving.

I have always contended in my own mind that most slasher men, in cooking size, bring the mixture to a boil too quickly. I realize that most people "boil their size for three-quarters of an hour or an hour or more" but most of this time is consumed after a boiling temperature has been reached.

I watched this fellow and, on the thin boiling size, he regulated the flow of his steam into the kettle so that it took it forty minutes to come to a boil, and then he boiled it for forty minutes afterward. Then he took some thick boiling starch, and took one hour to bring it to a boil, and then held it there for ten minutes. We put this under a microscope, and it appeared thoroughly broken up and dissolved. Furthermore, he cut down on the amount of thick boiling starch from 90 pounds to 65 pounds, which was a great big saving there, in addition to the difference in the price of thin and thick boiling starch.

Running the work on through the weave room, he got just as good a piece of cloth as the mill had been getting, which proved further that the starch had thorough penetrating qualities.

I decided I had learned something, and when I went back home, I had my slasher man, in making up the size, let it take 40 minutes to come up to a boil. I use thin boiling starch, and I found that we cut down from 105 pounds of starch, which we had been using, to 95 pounds, with the same result in the cloth. This was on a set of 14s yarn, 5,000 ends.

As I have said, I believe most men bring the size to a boil too quickly, and now I think if your readers will experiment with bringing it to a boil slowly, they will get better results, as I did.

This of course refers to corn starch, for I am advised that the conditions are just the opposite with potato starch. But very few mills in our section now use potato starch.

There seems to be some sort of action in the cooking of the size which provides a more thorough dissolution of the starch when it comes to a boil slowly.

This fellow showed me another thing that I used, too. He had an apparatus for controlling and regulating the temperature of the slasher cylinders, and by doing this, was speeding up the cylinder. Almost everyone knows that the average slasher man will lean toward baking the yarn instead of taking the chance of its mildewing, with the result that we get a lot of warps that are too dry. I felt of the yarn coming off of the slasher at the mill I was visiting, and when I got home, I instructed my men to work for this sort of a feel, more of a cold warp and not so dry, with the result that we have been able to increase our slasher speed from 15 yards per minute to 20 yards per minute, which means more slasher production, of course, and in the weave room these warps just naturally run better with less shedding. I believe that 90 per cent of the mills could speed up their slashers without doing any harm.

I would be glad if some of your readers would think about and experiment with these points, and let us hear from them through the columns of your magazine.

B. T. (GA).

Breaking Strength and Bleaching.

EDITOR COTTON:

In answer to the inquiry, "How Does Bleaching Affect Breaking Strength?" asked by "G. R. F. (N. H.)," in the May issue of COTTON, I would like to reply as follows:

The peroxide bleach will not weaken the fabric. By this process, the cotton is subjected only to the action of a mildly alkaline solution of hydrogen peroxide. In coming from the bleach liquor, it is washed in water and then finished off as desired. If the peroxide process is properly carried out, there should be no loss in strength whatever. In other words, the bleached cloth should be at least as strong as the gray. In fact, in Edmund Knecht's (and co-authors) "A Manual of Dyeing," second Edition, Volume 1, page 122, one is informed that:

"Bleaching with Peroxide of Hydrogen. This bleaching agent would, no doubt, rapidly supersede chloride of lime in the bleaching of calico if its price were to come down sufficiently low, since it produces a better white, and there is no risk of tendering the fiber."

It is generally conceded that peroxide produces an excellent piece of material. It gives a good white, equal to anything which may be done with chlorine; it retains the strength of the fabric; it gives an elasticity on knitgoods which is very desirable since the fibers are not corroded or harsh after treatment, and for this reason many underwear firms would not think of using anything other than peroxide

of hydrogen bleach baths. It is often taken for granted that goods being bleached lose in tensile strength, but as a matter of fact a well conducted bleaching process may actually result in an increase in the tensile strength.

The peroxide process is certainly a simple method of bleaching. There are no complicated steps connected with it. The bleacher has less to attend to and the results obtained are usually better when the feel, white, elasticity, etc., are considered.

A a direct answer to the second paragraph of "G. R. F.'s" inquiry, as to whether a lime bleach produces a stronger piece of goods, also a better white, than a caustic or peroxide bleach, I will say that I know of mills using the peroxide bleach actually at a trifle higher cost than chlorine in order to have the advantages to be gained through the use of sodium peroxide. This must mean then that the peroxide white actually commands favor in the market over chlorine. I do not mean to convey the idea that the peroxide process always costs more than chlorine, because the cost depends upon local conditions and will vary from plant to plant.

I think "G. R. F." will find that it is generally conceded that the peroxide system produces as good a white and a better finish than the general run of chlorine work.

CONTRIBUTOR No. 558.

Shedding at the Loom on Broadcloth.

EDITOR COTTON:

I would like to have some of your readers who have had experience on domestic broadcloth, explain how they are overcoming shedding at the loom. I am having quite a bit of trouble with this. Our construction is 100x60, 30s and 40s yarn. W. (S. C.)

Some Chinese Mill Problems.

EDITOR COTTON:

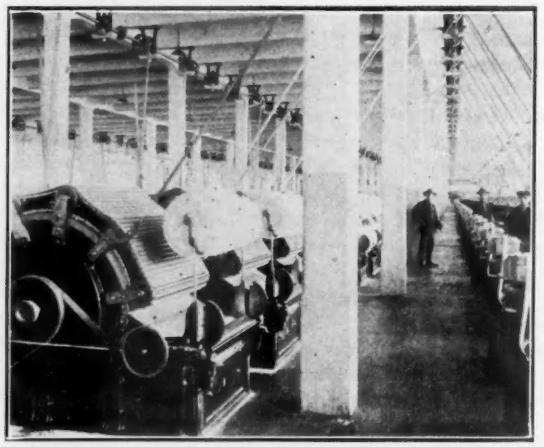
Ever since the earthquake in September, 1923, Japan has suffered financially, and has been borrowing millions from America and England. Yet she has enough surplus capital to lend to China to develop her industries, particularly the cotton manufacturing industry. The recent instance of Japanese companies taking over Chinese cotton mills have called to mind once more the matter of foreign capital in China. Some time ago a Japanese statesman in a rather veiled way made the suggestion that the Americans should furnish the money to develop China, and that Japan would furnish the brains. This idea was treated as facetious at the time, but now it seems it was more truth than poetry. Considerable discussion is going the rounds in China as to whether or not it is a fact that the Japanese are borrowing money in America at cheap rates, say 5 per cent, and then turning around and lending it out to China at the prevailing high Chinese rates of from ten to twelve per cent. There is no sensible reason why Americans don't do it directly instead of letting the Japanese do it indirectly and thus get enormous profits and advantages in controlling the Chinese industry.

The general business depression of the past few years, coupled with the high price of native cotton, has forced many newly-built Chinese cotton mills of considerable size either to go into bankruptcy or to sell or mortgage their properties to Japanese syndicates. The Japanese are only too glad to grasp this golden opportunity to extend their influence in this most prosperous industry in China. During the latter part of 1924 they bought two of the largest Chinese-owned mills, one in Shanghai and another in Tientsin, and arranged to act as long-term trustees for another mill in the Shanghai district. That this is a bad omen for the Chinese-owned mills is self-evident. The total amount of spindleage that has thus passed into Japanese hands is a little over ten per cent of that under Chinese control in

Office Building at the Paocheng Cotton Mills, Shanghai, China.

operation.

The largest of the three to recently figure in these transactions are the Paocheng Mills No. 1 and No. 2, Robinson Road, Shanghai. They both are under the same manage-



Card Room Interior at the Yu Ta Cotton Mill, Tientsin, China.

ment and are considered as one unit. The machinery is of American make, having been supplied by Andersen, Meyer & Company. The No. 1 mill was put into operation in 1919, and the No. 2 mill started in 1921, although both were planned at the same time. The former has 40,000 spindles and the latter 70,000. The total subscribed capital is still unknown as there are few shareholders, and they are not interested in such matters and don't care even to have their names made public. The total cost of the machinery alone

has been about $3,500,000 Gold. As the rate of exchange has fluctuated violently during the period when various payments were made, it is hard to calculate the exact amount in Mexican dollars. The rough equivalent probably is about $5,500,000 Mex., plus the cost of buildings and land, amounting to $1,500,000 Mex., besides other equipment.

During the years of 1919 to 1921, mills of such size would have had the opportunity to earn several millions per year by full-time operation. Unfortunately the yarn market began to slump when the No. 2 mill was started. The managing director had hoped that the prosperous times would continue for several years. Had this been the case the total cost of the No. 2 mill could have been fully paid for out of the profits of No. 1. But the conditions were just the reverse. A huge Japanese loan of 5,000,000 Yen, with an annual rate of 10 per cent interest, was effected in 1921. Ever since then neither the principal nor the annual interest could be met. As there was no other alternative, the Japanese creditors put the mills up at auction. There were no bidders on account of the various complications, and the Japanese were able to buy the mills at their own fixed price, $5,600,000 Mex., which was barely enough to pay off the loan plus the interest, not to mention the small Chinese creditors, who are almost helpless. Thus the managing director wasted his devotion and effort and energy in building so nice and so large a mill, and had to silently hand it over to his creditors. This is bad for him and for the Chinese mill owners in general.

The next plant to be taken over by the Japanese was the Yu Ta Cotton Mills, in Tientsin. Its spindleage is 35,000, of Saco-Lowell make. The mill was promoted in 1920 and placed in operation in 1921, just following the peak of prosperity. The total subscribed capital was $3,000,000 Mex., but the total paid up amounted to less than $2,000,000. The price of the textile machinery alone was about $1,500,000 Gold, plus $500,000 Mex., for buildings, exclusive of the other equipment. The price paid for the textile machinery was the highest known in this country. Long before the machinery arrived the paid-up capital was exhausted. The first loan concluded through seven Chinese banks in Tientsin amounted to $1,000,000. After its exhaustion, a huge Japanese loan of $2,000,000 Mex. was concluded, the terms of which gave the latter first preference to take the mill whenever the opportunity presented itself. Recently the directors decided to hand the mill over to the foreign creditors on a long term mortgage, but in reality it was sold. Both this and the Paocheng deal occurred at about the same time.

The third mill referred to is a mill located in Chinese territory in the Shanghai district, the managing director of which arranged the terms quietly in order not to arouse public protest. Under the rights of treaty, foreigners are prohibited from owning property outside of limits, but the Japanese were given the privilege of acting as long term trustees; thus to appearance there was "no sale." The mill's original name was maintained, and a few members of the Chinese staff are employed, thus convincing many outsiders that the mill still belongs to the Chinese.

The reasons which have forced these mills to pass into Japanese hands are many. First, the demand for yarn had been very poor during the past two years of business depression, and there was also much political disturbance. Many mills had to shut down for a greater part of the time. Some of them had actually lost money while in operation except those which had bought cheap cotton when its price was lowest. The price of yarn had been high, but it was not high enough to give the mills fair profit, because of the high price of native-grown cotton. The reason for this was the high price of American middlings and also the poor domestic crop coupled with the rapid increase in spindleage. Daily production is generally lower and overhead expense generally higher in Chinese mills than in Japanese mills, which are being managed along scientific and modern lines. While on the other hand, any one who has "influence" and money-power can give "lectures" on scientific management and be a manager. This is the most serious obstacle in the way of improving Chinese-owned mills. Sometimes such high positions can be "bought" by the highest bidder. The third, and most important of all causes of the relinquishment of control by the Chinese, was that they lacked initial capital and reserve funds.

The mills in question were organized during the prosperous times when any mill, regardless of how it was managed, could make $100 to $150 per bale of yarn produced and everyone was investing money in and talking about this prosperous business. The managing directors hoped vainly that the prosperity might continue until a profit sufficient to cover the cost of the mills might be made. Unfortunately the depression in the yarn market came a little too soon and this put them in a difficult position. The blunders made will doubtless be used to profit by the other Chinese-owned mills. It is a great pity that the cotton mill industry of China, which once offered splendid opportunity and promise, now has fallen into the hands of the Japanese. The American people, known to the world as textile experts and financial magnates, have done very little for this industry in China, in the way of giving financial assistance to any individual or Chinese-owned mill. This is their problem and it is China's problem.

A CHINESE READER (CHINA)

Another "Come-back" from the Clothroom.

EDITOR COTTON:

Some time ago I read an article in your splendid magazine entitled, "The Watchdog of the Mill." The general tone of this article would indicate that the author was an overseer of weaving. After reading this article, which gave the name, "Watchdog" to the clothroom overseer, it occurred to me that weave room overseers are much more refined now-a-days in their language concerning the clothroom overseer, as I can remember when the names we were called could not have been put into print without seriously violating Uncle Sam's postal regulations.

In other words, we finishers and clothroom overseers wish to extend our congratulations to overseers of weaving in the modification of their language to such a degree that their names for clothroom men may be printed and not be considered obscene or profane. They are progressing nicely.

In the April issue of COTTON we read many splendid articles and discussions by practical men dealing with many subjects, all of which are very interesting and instructive. In fact one may obtain many good points on almost every department in the mill with the exception of the clothroom. Why is it that we have so little on this

very important subject? If it is because of the finisher's negligence in presenting his department, then we should in some way be aroused.

The writer believes that finishers and clothroom men should have a part in the textile meetings, and should be considered along with other overseers who lope off two or three times a year to these meetings, where they discuss problems and gain knowledge. If it's good for carders, spinners, weavers, dyers, etc., a little of the same thing might be helpful to the finishers—yes and to the mills they represent.

Probably the reason the gentleman called the clothroom overseer the "Watchdog" is because said clothroom man remains on the job year in and year out, watching his pals in all the other departments go away on these rag-chewing trips.

Well, we all know these different meetings of departmental heads result in a great deal of good, both to the men as superintendents and overseers and also to the companies they represent. These men come back home with something new in their brains, or, at least, new ideas about old things. This tends to stimulate and inspire them to take a new and firmer hold on their jobs, thus they are encouraged and enlightened and greater progress follows. Doesn't the clothroom man need a little stimulation and inspiration? Or should he continue to be "Watchdog" and just "watch" the other fellows dress up quarterly, or semi-annually, and cram a clean shirt and collar into a handbag and wave as they pass in the Pullman?

"Yours truly" happens to be a finisher or "Watchdog," and I'm proud of it, because I consider it about the most important link in the chain, as the finishing department constitutes the connecting link between the manufacturing and the market. In these days a mill's product is judged very largely by the finish and the "put-up" of the package. Customers appreciate a good finish, one which will meet their special requirements, and a well put-up product, and there are yet some great improvements to be made along these lines. Of course it's up to the "Watchdog" of the mill to establish for his company a good reputation along these lines. Customers are slow these days in buying old constructions and old patterns; also old-time finishes and carelessly packed goods. They are calling for something new, and the more knowledge the clothroom man—the watchdog, if you will—gains along these lines, the better his company will fare at the hands of the customers.

Now, in order to turn out the very best kind of work from the cloth room, it is absolutely necessary to get and keep the highest class of help possible. We have fallen down in the past by failing to train help to do details correctly, but we are making some progress here also. This should be given special attention by the overseers. We very often find that some work is being done in the wrong way, or not being done in the best possible way, and on investigation we find that neither the overseer nor his second hand has given any definite or special instructions to the help when they were employed. This is a bad system and should be changed.

A great deal is—and should be—expected of an overseer in the way of leadership. He should be a man morally clean and sober, and it is still better if he be a Christian. Psychologists tell us that *like* attracts *like*. This being true, if the overseer is clean and upright, he will be pretty apt to attract and hold good help. The time has come when every overseer should be on his toes and after the little things that have long been neglected. He should do more real thinking for himself and not be afraid to present his ideas for consideration.

In conclusion, the "Watchdog" would again ask—If these conventions and meetings are good for the presidents, managers, superintendents, carders, spinners, weavers, dressers and dyers, why should the clothroom man be the missing link? Wouldn't some of it help him, too? What do some other finishers and clothroom men think? Come on, express it, and let's have it.

WILLIAM, THE WATCHDOG.

Opening and Picking.

EDITOR COTTON:

It seems as though in one or two of the later issues of COTTON some of our unfortunate brethren have told some very lamentable tales of woe concerning their weak and uneven yarns. I have written one or two somewhat lengthy and detailed articles on this ever-present evil in the past few months, and if the carders who have complaints to make would take the time and trouble to look back through some of their old numbers of COTTON, (I am assuming that they have them, for, if a carder destroys a copy of COTTON he should be fired), I am sure they would be able to find some suggestions that ought to furnish a starter in running down their troubles.

Although I have already said a generous mouthful on the subject, I have a lot left, if the editors can find room for it. In this article I am confining my efforts to the earliest and most important processes of opening and picking.

The picking process in most plants has been, in the past, and is probably doomed to be for sometime yet, the most sadly neglected process in the mill. It seems to me it is about time that some of the highly developed gray matter, of which the industry justly boasts, should spend a little less time in the office, or in the card room reversing flats, and behind the speeders sketching cone outlines, and stick around the picker room a little more. Maybe it is too cold in the picker room during the long winter months to hang around much without an overcoat and ear muffs. If that is the case, why not get the piper to put up a few more steam lines and shoot a little humidity into the ozone?

But seriously, to get down to business, the first thing to do is to open up the bales and make sure that the cotton itself is all it should be. Staple the stock and satisfy yourself that it doesn't contain an abnormally high percentage of short fiber. Notice also how the tufts pull apart, as this has an important bearing on the settings in the more advanced processes.

A great deal of the poor yarn being made can be greatly improved by the simple expedient of airing the cotton thoroughly for several days before it is fed into the openers after breaking open the bales. I have before advocated airing cotton. Don't take my word for it but run a little test with a few bales and notice the difference in the strength and appearance of the finished yarn. The truth will be apparent and above argument.

To my way of thinking, it is almost criminal to open up a bale and feed it directly into the openers, yet it is done in some of the most modern and up-to-date mills. But this

fact isn't enough to excuse any carder who feeds the stock through immediately after opening the bales. Just because some do it and seemingly "get away with it," does not mean that it is right. The point is, that these fellows could make a lot better yarn if they would air the stock first. It doesn't call for a large expenditure for machinery. All that is required is a few feet of floor space and a couple of hundred feet of lumber.

One plant may be using a poorer grade of cotton than another, yet if the poor cotton is aired properly before running, the chances are that the poorer stock will produce pretty nearly as good a quality of yarn as the little better and more costly cotton which is fed in immediately after opening in the other plant.

A great deal depends on the style of bale breaker with which the mill is equipped. There are three types that are in more common use than the others, namely: the roller bale breaker, the porcupine bale breaker and the hopper bale breaker. The hopper type is the best and by far the most widely known and used. The porcupine bale breaker gives the best results when used on very short staple cotton. A fair beater speed is about 800 r.p.m.

The hopper bale breaker is, of course, the newest type and gives the greatest production of any. It also opens up the cotton much better than any of the other styles.

The best work is derived from the machine by setting the stripping roll as close as possible to the apron. When greater production is wanted it is much better to speed up the apron rather than to increase the distance from the apron to the stripping roll.

To get a good even breaker lap it is necessary that the hopper of the automatic feeder be loaded evenly. See to it that the tender feeds in continuously as required. If he isn't watched, he will stuff the hopper full and then sit down for a few minutes' rest and allow the hopper to run until it is almost empty before putting in any more stock. Of course if the feeder is equipped with an automatic feed regulator it will overcome to a great extent the unevenness caused by improper feeding-in, but it will not compensate fully for it. Remember you cannot start too soon in your attempts to produce a good even yarn.

When you start to look over the pickers, give plenty of attention to the beaters. The type and speed of the beaters is about the most vital part of picking machinery.

On staples up to an inch or so, the Kirschner beater will give excellent results. It does not have such a harsh effect on the fiber as a blade beater. It is more of a combing action, and consequently the Kirschner is an excellent cleaning device. However, if it is used on long staple cotton it has a strong tendency to curl up the fibers, and produces very neppy work. A good speed for this type of beater is about 1150 r.p.m.

Be very careful to inspect the blade beaters at regular intervals. Do not let them become dull, or very bad work will be the inevitable result. The beater should be set about 1/16 of an inch from the stripping bar. Some good average speeds are as follows:

2 blade beater long staple about 1,000 r.p.m.
2 blade beater short staple about 1,450 r.p.m.
3 blade beater long staple about 850 r.p.m.
3 blade beater short staple about 1,100 r.p.m.

Of course a great deal depends upon how much leaf and foreign matter is contained in the stock. Clean cotton does not require the same number of blows per inch as dirty cotton does. Long staple will not stand as much beating as short staple cotton, as the individual fibers are much weaker.

When deciding settings from the feed rolls to the beater the staple and weight fed in should be considered. If long staple or a heavy lap is being run a wider setting is required than would be well for short stock or a light feed. Some good settings are:

Short staple—set from 3/16 of an inch to ¼ inch.
Medium staple—set from ¼ of an inch to 5/16 inch.
Long staple—set from 5/16 of an inch to ⅜ inch .

One point that is sadly neglected by a great many carders is the size of the feed rolls used. Some men believe that the same diameter feed rolls give equally as good results on all staples. This, however, is far from correct.

For short staple cotton use 2-inch feed rolls.
For medium staple cotton use 2½-inch feed rolls.
For long staple cotton use 3-inch feed rolls.

The distribution of the air current on pickers is also of the most vital importance. It directly affects the evenness, cleanliness and the running qualities of the lap made. The greater portion of the air should be directed to the top cage. If the current is too strong, a large percentage of the leaf and dirt will be retained in the laps, and if the air current is too weak the cotton will roll and make a very uneven lap. Much of the good fiber will also drop down through the grid bars.

I believe that it is the best plan to weigh the laps from the intermediate picker as well as those from the finishing machine. It is a very good plan, also, to have an evener motion on the intermediate machines. They will help a great deal.

A good many carders have evener motions on their picking equipment and are never really positive whether they are working properly or not. The eveners should undergo a little personal inspection now and then. It is as bad as having none at all if they are out of adjustment. To test out the evener motion see to it that the belt rides in the center of the drums when running a normal number of laps. Then take off one lap and watch the belt. After this use five laps. Should the belt move to the extreme end of the cone, either way, the evener should be set.

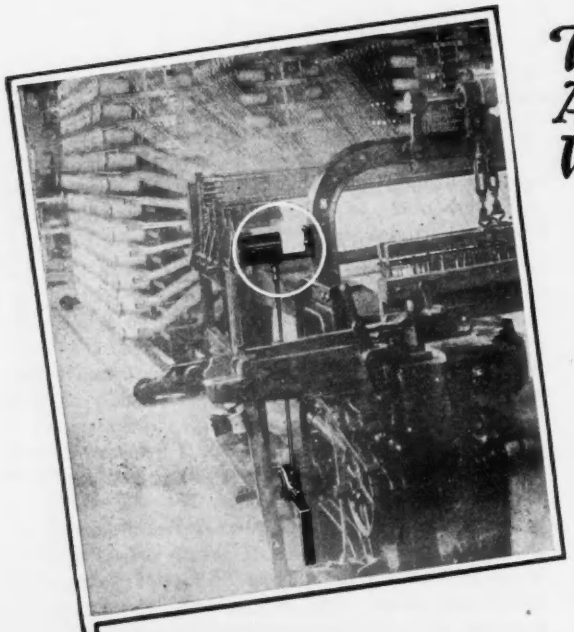
Do not make very heavy laps. Lighter laps give a better quality of yarn. Some fair weight laps are as follows:

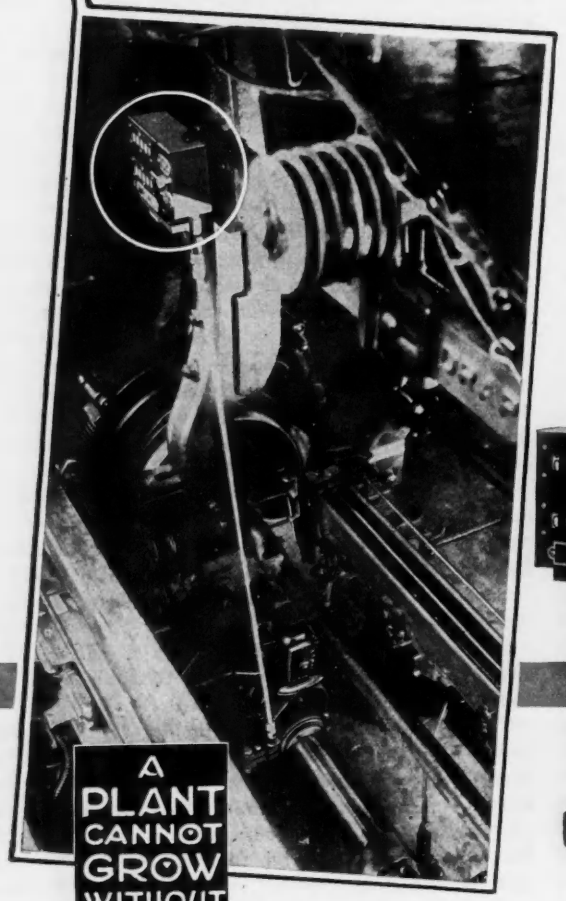
	Egyptian Cotton	American Cotton
Breaker lapper	13 to 15 ounces	15 to 17 ounces
Intermediate lapper	12 to 14 ounces	13 to 15 ounces
Finisher lapper	11 to 13 ounces	12 to 14 ounces

These weights are for medium counts of course. Finer counts would require lighter laps. Generally speaking, about two ounces lighter in each case.

The grid bars should be set properly to get a good clean lap. If they are set too close to the beater, or at too great an angle, a lot of good fiber will be lost. If they are set too wide, and not at a great enough angle, the laps will be excessively dirty. A good average setting of the grid bars is about ⅜ of an inch from the beater at the top, and this should be increased gradually to ¾ of an inch at the bottom.

The feed rolls should be set so that the overhanging fibers are struck off clean and straight over the entire length of the rolls. As stated before, the proper diameter rolls





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should be used, according to the staple of the cotton.

It may be well to give the causes of bad laps.

1. Air current not properly adjusted. This will cause split laps.

2. Dirty cages.

3. Clogged trunking systems.

4. If lumps have collected on the sides of the machine they will cause ragged laps.

5. Excessive weights on the winding motion makes hard laps.

6. Dry bearings on the winding motion make hard laps.

7. Not having sufficient weight on the calender rolls will make soft laps.

8. Too much weight on the calender rolls will sometimes cause soft laps.

9. If the brake shoe is allowed to become dirty or oily, the friction pulley will slip, causing soft laps.

10. Evener motion out of adjustment will cause uneven laps.

11. Feed rolls running heavy will stretch the laps fed in, causing uneven laps.

12. Cone belt running slack will cause uneven laps.

13. Apron too slack.

14. Insufficient weighting on the feed rolls.

If the foregoing will help any of COTTON'S readers to overcome uneven and weak yarns I shall feel well repaid.

I would be glad to see more new names in the discussion columns now and then. Some of the men seem to be getting cramps in their pencil fingers.

C. C. (N. J.)

The Effect of Worn Bolsters.

EDITOR COTTON:

I will try to answer the question of "Contributor No. 812," in the May issue, with reference to the effect of worn bolsters and spindles on fly frames.

In the first place, when the spindles wear it will be noticed that they wear on two flat sides; never perfectly round. This is due to the flyer overhanging in two places. The worst effect is that the roving, as it is laid on the bobbin by the presser, undergoes a jerk at times, causing strained or stretched roving. This happens at practically every revolution of the spindle. On the other hand, it will break the pressers off of the flyers on a frame that is worn very badly.

This vibration makes weak yarn and bad running work, and the flat spindles will throw the oil out of the bolsters and bobbin gears and cause them to run dry. It also will work the set-screws loose on the bobbin shaft and spindle shaft and cause tangled bobbins and waste at each change of the carriage, especially if the frame is long and has any dwell at all. At the end of the stroke there will be bobbins run over or under.

My advice to the mill having this trouble is to change and throw out these worn bolsters and spindles, if the frame is worth keeping, and put in new bolsters and spindles. I would order bolsters and spindles for one frame, and then use the better of the old ones for supplies on other machines. But before putting in the new ones, I would make certain that the frame is level and lined, and put in new steps, and see that the step rail is level and lined, that all rack gears and the back rack shaft are lined and leveled; then plumb all bolsters, after lining and leveling the carriage, using a level to plumb the bolsters lengthwise, and straight up and down. I would see that each spindle turned freely, while plumbing, and then tighten on all gears and set them.

J. F. L. (ALA.)

EDITOR COTTON:

"Contributor No. 812," in the May issue, asks what effect worn out bolsters and spindles on fly frames have on the running of the work and on the breaking strength of the yarn.

First, when the spindle and bolster become worn out, we can easily see that the spindle will vibrate back and forth a good deal, consequently the bobbin will vibrate and every time it moves gives a tug at the roving, either breaking it at the press, or causing thick and thin places which will pull down the breaking strength.

Second, I must say that there has been some neglect if the spindles and bolsters become worn enough to cause this. What system is used for oiling bolsters and spindles, or probably they are not oiled for fear of having stuck spindles. If the spindles were oiled at least every two days and the speeder tender instructed to clean all waste from around the top of the bolster before oiling and the doffers are instructed to clean the spindles downward instead of pushing the waste up into the bolster, I don't think the spindles and bolsters would become worn or that there would be many stuck spindles.

W. O. R. (MASS.)

Slack Ends from the Warper.

EDITOR COTTON:

Replying to the question of "H. H. (S. C.)" as to "what causes slack ends to hang back on a warper away from the selvage," I imagine that he does not mean that he has trouble with the ends while they are on the waper, but that after he has put the warper beams in on the slasher, some of the ends run slack.

There are two things which will cause this trouble: the comb on the warper and the direction in which the warper beam turns while the yarn is winding on it.

The comb most commonly used on warpers is a spring comb, which is made of a long coil spring into which the teeth are stuck. This spring gives the teeth the proper spacing, and is drawn out or let back as required to give the comb the proper length or spacing of the teeth. In course of time, this spring, being held tightly in the middle and stretched on the ends, gets out of shape so that the teeth will be spaced wider toward the ends of the comb than in the middle. It also happens sometimes that the comb spring will fail in spots so that there will be places where the spacing is wider than it should be. In either case, the yarn being laid more closely on some portions of the beam than on others, the beam will not be of uniform size. This may not be evident to the eye, but can easily be detected by feeling the beam for soft spots. When the beam is run on the slashers, the smaller places will turn it too fast for the larger places so that the yarn will run slack there.

This can be remedied by replacing the spring comb with a positive expansion or "fence row" comb which will give uniform spacing at all times.

If "H. H." has his warper beams running on the warper toward the operator, with the yarn coming off the front

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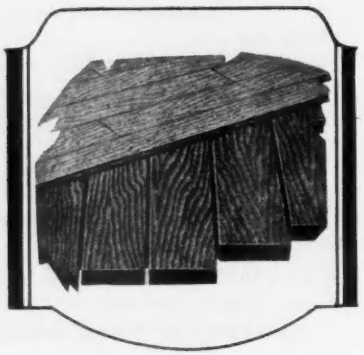

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roller over the beam, this may cause his trouble. I do not know why it is, but it is a fact that with the top of the beam turning toward the operator, that is, away from the creel, ends will run slack on the slashers. With the direction reversed so that the top of the beam turns toward the creel, away from the operator, and the yarn drops from the front roller down behind the beam, this trouble will be eliminated.

I am sure that if "H. H." tries both of these suggestions he will have no more trouble along this line.

PREX (GA.)

EDITOR COTTON:

The question of "H. H.," as to "What causes slack ends to hang back on a warper away from the selvage," is not exactly clear. For ends to hang back on a warper means that the ends are too slack and need some kind of friction to keep them steady and running off the spools smoothly. But this could not be considered as "ends hanging back *away* from the selvages." I presume the question refers to the beam warpers. Now if the ends are slack at intervals along the surface of the warper, it is because of the slack spools which haven't sufficient tension to make them run steadily and lie down smoothly on the front of the warper on the beams. The spread of the comb or thread guides being too open will cause the threads to pile up against the beam heads and make slack threads when run off at the next process.

At my mill a remedy I have found for slack threads is to cover the first idler brass roller under which the threads run after leaving the spools. This roller is covered with roller coverer flannel, cemented to make it stick and cause some friction when the threads come "loafing" up behind and are at the mercy of the beam on the front pulling the threads over at any advanced speed which some might have over others with more friction. We must all admit there is a considerable difference of friction on the spools regardless of whether they all have the same steps.

Low speed, and having the warper cones balanced with a 12- to 14-pound wheel, will reduce a lot of irregularities of the threads and leveling and lining the creels makes the greatest difference in the world.

I would be glad if "H. H." would state his question again, and make it plain just where his trouble is and what it interferes with, possibly at the next process.

CONTRIBUTOR NO. 14.

EDITOR COTTON:

As I figure it out, the question of "H. H." refers to the condition found at the slasher, that is, when the section beams are unwinding he sometimes notices some of the ends to be slacker than the rest. In this particular case he refers to those somewhat removed from the selvage. The cause for the trouble I have in mind is that some of the ends are not properly spaced on the section beam. This may be caused in two ways. One cause is the drop wires sometimes get bunched in places, which causes two or more ends to run closer together than they should. This same thing is sometimes caused by the comb not having the teeth uniformly spaced. It is necessary to see that they are properly spaced after making any material change in the spread. Our warper tenders are taught to run their hands along the teeth each time and attend to this matter, and also see that the drop wires are not bunched.

CONTRIBUTOR NO. 15.

EDITOR COTTON:

In trying to reply to the question of "H. H. (S. C.)," will say first that he does not give one much of anything to work on. He asks only, what causes slack ends to hang back on a warper away from the selvage? He does not state whether it is on section beam warping or long chain ball warping. At any rate, that would not make much difference.

I suppose "H. H." means that there are some ends that run from the creel easier than the majority of the threads, and their position is some few inches from the selvage. If that is the case, I should first find out whether these spools or tubes have skewers or pegs the same size as the others and if they are in good condition. Poor pegs, and new pegs if crooked, will make poor warping. Also pegs worn down small. When using spools these will be harder to pull. No warper should have new pegs mixed with worn ones, if one expects to have good even work. There may be some other causes, but that is the best I can suggest with the limited information he gives.

MACK (GA.)

Finishing Chambray.

EDITOR COTTON:

I have heard some discussion as to the best way to finish blue chambray, and which is the most widely used method of handling this material, and if it is half-bleached or dyed from the bale.

I have finished lots of the goods in question. No bleaching or singeing is necessary. The goods are sewed together right from the bale and starched dry in about 7 to 10 degrees Tw. of corn starch with the usual softener. They are starched in a two-bowl starch mangle and run overhead in starch, well squeezed, then over 8 or 10 cans, then over a 90-foot tentering frame. These are all run together in range from trucks, the goods being starched and dried at one operation. The goods are then left on trucks until cool, damped on a damping machine, about 10 pieces on a roll, allowed to stand one or two hours, and then calendered on a three-roll calender cold, once through. The addition of Epsom salts or Glauber's salts to the starch will make them heavier.

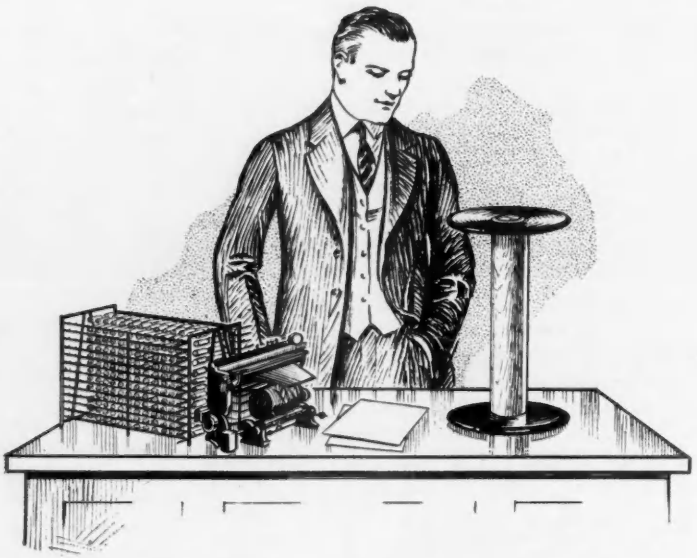
W. B. (MAINE)

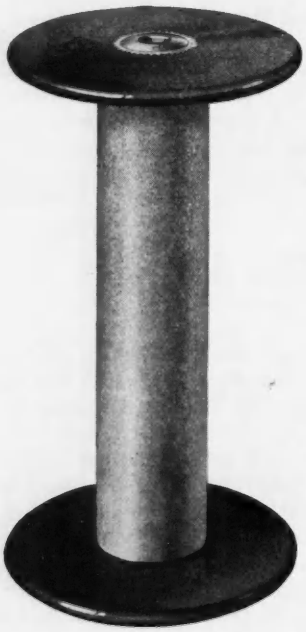
Reducing Fly at the Cards.

EDITOR COTTON:

In the June issue of COTTON "E. A. G. (N. H.)" said he is having trouble with excessive fly at the cards. He said he runs 1⅛-inch cotton, making 42½-43½ pound laps and 55-grain sliver, with a doffer speed of 12 r.p.m. He said his flats are set to a 9; cylinder screen from 34 to 64; licker-in screen, 22; feed plate, 10; mote knives, 7 and 5.

As a suggestion to him, I offer the following settings, and wish he would try them and see how much fly he gets: feed plate to licker-in, 12; mote knives top, 12, bottom, 10; licker-in to cylinder, 7; back plate from cylinder, top 29, bottom, 22; flats to cylinder, 9; front knife plate to suit strips desired; cylinder screen: from licker-in end, 29; from middle, 58; from doffer end, 3/16-inch; doffer comb, 10 to 12; licker-in screen, the blank part from licker-in nose, 29; doffer to cylinder, 7.





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One stunt I have seen that seems to cut down fly is to place a piece of tin that will form a partition from the floor extending up between the space where the licker-in screen and the cylinder screen meet. This tends to cut off the currents of air from the cylinder that will naturally blow through the licker-in screen and cause some cotton to leave the licker-in and make fly. I have seen this work very effectively, but a good many mill men seem to desire to take out all the fly possible so long as it does not contain good cotton, thus saving fly from accumulating on the frames in subsequent processes. R. J. W. (N. C.)

EDITOR COTTON:

In response to your correspondent, "E. A. G. (N. H.)," whose question stating that he is bothered with excessive fly in the card room was published in the June issue of COTTON, will say that he should be happy to be running stock that is 1⅛ inch long, even if he does make more fly than is called for. Most of the rest of us running ⅞-inch staple are obliged to get out the short stuff in order to get decent strength to the balance. However, a word giving my experience along the line of this trouble may be of help.

Excessive card fly (a beneficial evil) is not one that can be remedied by any specific method of settings. We find that the air drafts of cards are as diversified as the dispositions of people, and consequently cannot all be treated alike. In a general way, however, three back settings control this to a great extent—the licker-in screen, the mote knife and the back plate may be varied from the usual practice of card settings with good results.

For example, "E. A. G.'s" settings for the screen and mote knife, as given in the June issue (licker-in screen, 22; mote knives, 7 and 5) are a little close for at least some makes of cards and will cause an excess of fly. As we are obliged to lower or set off the front of the main cylinder screen, so to a certain extent must we treat the licker-in screen at the take-in of the cotton. E. R. (GA.)

EDITOR COTTON:

The subject of cutting down fly at the card, brought up by "E. A. G." in the June number is one we are all interested in, as it is very expensive when a lot of good cotton is going into the waste house. "E. A. G." doesn't say what make of card he has, and I am at a loss to tell him just what to do, as a good setting on one make of cards may not get results on a different make. Here are the settings I am using with fairly good results on H & B cards: Flats, 10; doffer to cylinder, 7; cylinder screen, 34; back plate to cylinder, 34; licker-in screen, 34; licker-in to licker-in screen, 7; feed plate, 7; mote knives, 10.

As I said before, this setting may not do on his cards, and I, myself, am open for improvements. I shall read with interest other replies to his question, and hope that I, along with "E. A. G." and others, may get some valuable information. W. H. (GA.)

EDITOR COTTON:

In reply to the question of "E. A. G. (N. H.)" as to how he can reduce the percentage of fly waste on his cards, I wish for his benefit to give an extract from a somewhat lengthy article called "Points on Carding" which I have written and which will soon appear in COTTON.

"You've got to do something about Number 11"

"DOWN for two hours again yesterday! Can't you keep it running and save tying up the whole plant?"

"Sorry, Chief, but no millwright in the world could make *that* belting stand up under the 2000 r.p.m. that we're running on Number 11. It wrecks 'em—wears the life out of 'em."

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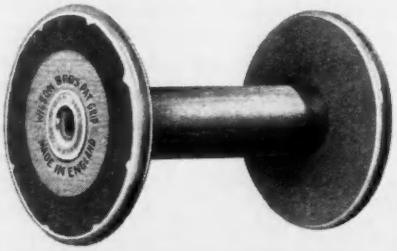
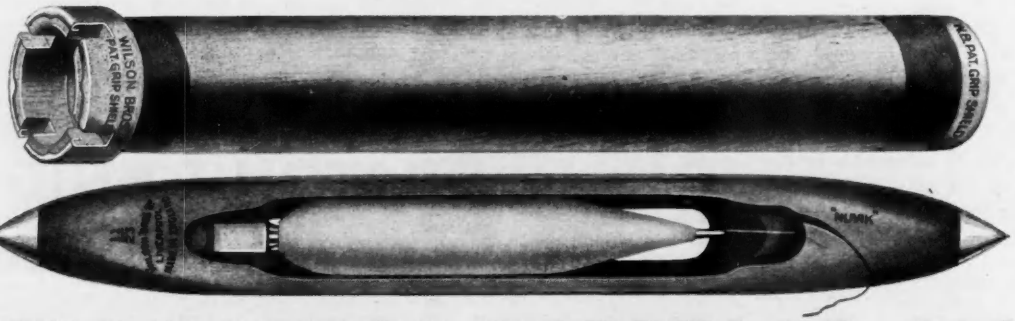


TRADE MARK WB



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"The amount of waste that is removed at the knife bars is governed to some extent by the number of bars used, the angle at which the bars are set, the distance of the bars from the licker-in, the distance from the first bar to the licker-in, the distance from the bars to the screen, and also the bevel of the bars. When only one bar is used the stock is not cleaned as thoroughly as it might be, and more of the short fiber will be removed than when two bars are used.

"The screen should be drawn as far back as possible and two knives should be used when carding coarse work. The first knife should be set about 7/8 of an inch from the feed plate. The second bar should be set one inch distant from the first knife bar. The second knife bar should be set about one inch from the front of the under screen. The point of the knives should be set with a number 10 gauge from the licker-in, with the heel of the bevel of the knife bar 1/4 inch from the teeth of the licker-in. *The closer the knives are set to the licker-in, the less fiber will be removed from the stock.*

"A knife having a short bevel will not remove as much waste as a knife that has a long bevel. A long bevel does not set as closely to the teeth of the licker-in, at the heel, as a short bevel does, and consequently the fiber has greater opportunity to fly away from the licker-in. About one per cent to one and one-half per cent waste is the general average removed by the knives and grid bars.

"The cylinder casing should be set as high up between the cylinder and licker-in as possible. A number 10 gauge is a good setting at this point. The front of the cylinder casing should be set from 3/16 to 1/4 inch from the cylinder. As a rule the 'button' of the gauge is used for convenience. By setting the licker-in to a number 10 gauge at the back and about 1/4 inch at the front, a very small percentage of waste will be removed. If it is desired to remove more waste at this point it can be done by setting the front of the casing up closer to the licker-in.

"A good setting from the licker-in to the cylinder is a number 7 gauge. The gauge should move freely. * * * "

I believe the foregoing suggestions, if checked up and carried out as far as possible, will eliminate his trouble of removing too much fly waste. If he will read the complete article on cards referred to, he might find several other points of interest. C. C. (N. J.)

EDITOR COTTON:

I have read carefully the question of "E. A. G. (N. H.)," who says he is taking out too much fly at his cards, and wants some suggestions for card settings.

His settings seem to be in line with ours, except his cylinder screens, which he sets from a 34 to a 64 gauge.

Here are the settings taken from one of our cards, which is working satisfactorily: Flats, 10/1000; cylinder screen at back of card, 22/1000 tapering to 1/4-inch at front; feed plate, 10/1000; mote knives, top and bottom, 7/1000.

J. O. E. (N. C.)

W. F. FARMER has resigned as overseer of spinning at the Sibley Manufacturing Company, Augusta, Ga., to become night superintendent of the Williamston (S. C.) Mills.

J. W. MCARTHUR has become superintendent of the Priscilla Spinning Company, Ranlo, N. C., succeeding Allen D. Keyser.

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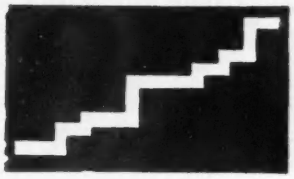

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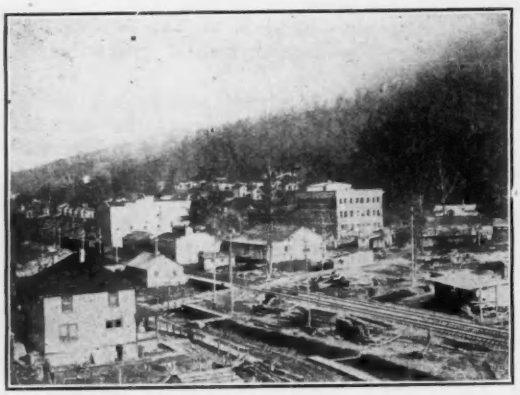

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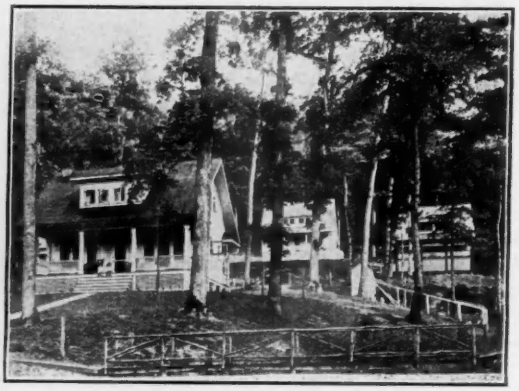

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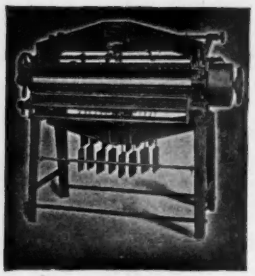

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The Question of Fly Frame Tension.

EDITOR COTTON:

In reply to "G. D. S. (S. C.)," whose question in a recent issue of COTTON states that he is experiencing trouble with tension on the fly frames, that is, the work is too loose on the start of every doff, with empty bobbins, and then is very good until about an hour before the doff, then it is too tight and stretches the roving, and must be let off, I would like to tell him of some experiences I have had.

I once was with a mill where the same difficulty of ends running slack on the slubbers was experienced, and the trouble was traced to the fact that in the past someone had used a center punch to prick the small end of the bottom cone, and thus the ends would run slack to start up on the doff but would adjust themselves after passing the place where it had been roughed up. The idea of roughing up the cone was probably to make it pull better when the doff started off, but in fact it made it worse as it altered the true outline of the cone and gave a larger effective diameter to the bottom cone on the small end. By careful filing while the cone was running, this trouble was eliminated. So "G. D. S." might try filing a little on the small end of the bottom cone, and this will correct the ends running slack on the start, and a little filing on the top cone at the smaller end will tend to correct the tightness of the ends at the end of the doff. This filing must be done lightly and carefully.

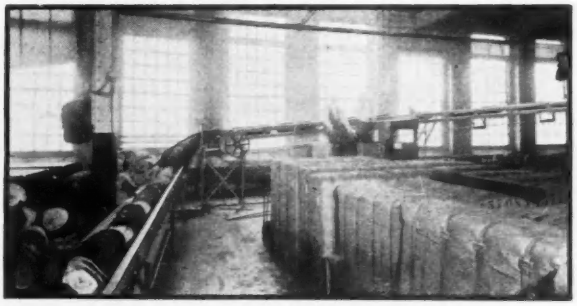
Then again, I was at a mill where they had taken their cones out and turned them down in the center (bottom cone). Needless to say, they got into trouble and the only remedy that they ever found was to send to the factory and buy new cones. They had altered the true outline of the cones and there was no way to get them back into their true shape. I would suggest that "G. D. S." order one set of cones for the frame that is giving him the most trouble and see if he doesn't get results—and if he does, then he will know that the trouble is with the cones.

W. J. R. (N. C.)

EDITOR COTTON:

I note the question of "G. D. S." in the June issue, with reference to the difficulty he is having with fly frame tension. He is up against a tough proposition if he expects to make perfect work with the fly frames he mentions. My first suggestion would be to get up-to-date machinery if possible, for in this day of new inventions and improvements, it is well-nigh impossible to compete with other mills without having the latest machinery. But if he has to keep the old model Woonsocket and Pettee frames, I would suggest that he see that he is not laying the roving too close on the bobbin. Then move the cone belt shipper as close to the small end of the cone as he can get it on an empty bobbin—that is, when the frame is doffed—and then put on one tooth less tension gear. If that doesn't seem to help the trouble any, I suggest that he change the bottom cone gear and run the cone a trifle slower and then change the tension gear to regulate the ends.

I notice he says that in dog-days his work will not run at all. There must be something radically wrong at his mill. If he will come over to a little mill in Georgia I will show him a card room on which dog-days have very little effect, if any. Dog-days used to worry me, but I do not



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IN the mills of The Proximity Manufacturing Company at Greensboro, N. C., a recent installation of Mathews Conveyers is already paying handsome dividends in relief from trucking through the mill, and in floor space saved.

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study about them any more, for I am already fixed for them now. W. C. H. (GA.)

EDITOR COTTON:

This is in reply to the question over which "G. D. S." has been losing sleep. He says that on the start of a new set on the fly frames the ends run slack for about an hour, then the tension is perfectly all right until the set is almost full, when the ends become too tight and cause stretched roving; also he says the work runs along fine on wet winter days.

I might just as well tell him at the start that he has got to "loosen up" and buy some humidifiers if he ever wants to run those frames right. On those wet wintry days he speaks of, he is getting plenty of good natural humidity, and that is why the work runs at an even tension throughout the set. Doesn't it seem logical, then, that the work would always run good on any average day if he installed the proper humidification system and put in the moisture which he automatically gets on wet days?

During dog-days, the only thing to do is to put on the smallest tension gears possible and make the best of it. We all have our troubles in close, sticky weather.

"G. D. S." should not look for trouble in his frames because I do not believe it is there. If it were, it wouldn't be the same complaint from all the frames, and he states that such is the case.

Let me explain why the ends start slack, then run right, and finally end up by running too tight, causing stretched roving. When the ends run slack at the beginning of a set, it is because the bottom cone gear being used is of the wrong number of teeth. If a change of one tooth is too great, the belt should be moved slightly on the cones.

The reason the ends gradually assume the proper tension is because, not having sufficient humidifiers, the cotton is too dry. This allows the strand of roving to fluff up, giving it a greater diameter than it should have under the proper conditions.

Then if the strand is larger than it should be, the bobbin will build up faster than it should, taking up the slack as the diameter of the bobbin increases. Finally, when the bobbin is almost ready for doffing, it has increased in size faster than it should in proportion to the distance the cone belt has moved. That is the cause of the roving being stretched at the finish of the set.

There is very little use writing any further, as I don't believe anything can be done to improve the conditions very much until he has the proper system of humidification.

Before I close, however, let me comment on the statement of "G. D. S." that he has "several good men who tell him that the conditions have been about the same for the twenty or thirty years they have been there." I want to offer the friendly suggestion that he take those "several good men" and soak them in the canal that he says runs by his window. It will settle the dust in their attics.

C. C. (N. J.)

EDITOR COTTON:

If I understand the question of "G. D. S. (S. C.)," he wants someone to give him information that will help solve the problem of having loose work on the start after doffing on the fly frame, and getting tight after about an hour. (By the way, he says that one side of his mill is only fifteen

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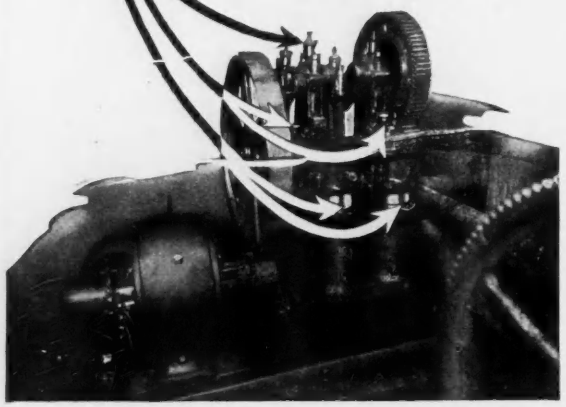

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feet from the canal and the other side below the surface of the ground. He should have the best running work of anybody.)

I suggest that he make a thorough examination of the let-off motion, the rack, contact shaft and twin gears. After he has gone through these, if he doesn't get any results, then he should change the compound lay gear so that the cone belt will be about two inches from the small end of the cone when beginning a doff. He should set his rack so that the ends will start on the first lay tight. Then he should find the tension gear to regulate the ends to the new position of the cone belt.

As to the work running bad during the dog-day season, we always put in more twist, and our work runs just as good then as any other time. Up to a short time ago, the writer had been an advocate of little twist in roving, but I have been converted on this point recently. One of the mills I have charge of was running very bad in both carding and spinning. One of our men suggested that we put more twist in the roving. I could not see how more twist would help the ends in the spinning room. However, we increased the twist two teeth on the speeders, and instead of losing production, we gained. And when the new roving got into the spinning room, the work began to run better and has been running good ever since.

Now as to the weights on the rolls, I have never tried changing the weights from those sent out by the builders. It may be possible that some time it would become necessary to change. J. O. E. (N. C.)

Why the Ends Break at the Spinning.

EDITOR COTTON:

Here is a question on spinning upon which I should like to have the suggestions of some of your readers.

I am making 6s to 14s warp, and have a 7-inch traverse, 2 1/16-inch rings, gauge of frame is 3-inch, running warp wind. I have trouble with the ends coming down when the frames are half-full or over. They frazzle out and catch on the other two bobbins making the thread look fuzzy. I might add that on the 12s warp I use a No. 1 flange ring, 2⅛-inch ring, having changed from a No. 2 flange. The distance from the roll to the guide is 5½ inches. I use warp wind, with a 7½-inch traverse, cylinder speed of 938, front roll speed 132, spindle speed 8,110 revolutions per minute. Using separator blades, 4 x 3¼ inches.

On the 7s warp, the ring is a No. 2 flange, 2 1/16 inch diameter, 7½-inch traverse, warp wind, cylinder speed 820, front roll speed 164, spindle speed 6,706 revolutions per minute. Using separator blades 4 x 3 inches.

I hope some readers of "How Other Men Manage" will make some suggestions as to what is causing my difficulty and give some remedies. Y. S. (GA.)

(Editor's Note.—The foregoing question appeared originally in the June issue. Since its publication, however, "Y. S." furnished additional facts which are included in the above revision.)

EDITOR COTTON:

In the June issue, "Y. S." outlined a difficulty he is having in spinning with the ends coming down after the frame is half full and catching on the other two bobbins,

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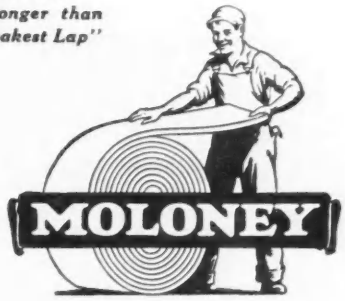

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making the thread look fuzzy. He says he is running 6s to 14s warp wind, with a 7-inch traverse and 21/16-inch rings on a 3-inch gauge frame.

I should say that he has just about got too large a ring for his gauge of frame, and too much traverse. He has got only 7/8-inch between the rings, and the traveler couldn't be made heavy enough to stop ballooning without breaking down.

Just for my own personal knowledge, I should like to know if "Y. S." hasn't changed from 1¾-inch rings, and if he has changed to a No. 1 flange ring, and if he is using separators.

I would advise him also to get the thread board down nearer the spindle. This will cut ballooning some.

R. J. (GA.)

EDITOR COTTON:

Judging from the statements of "Y. S." in his question in the June issue, as to ends coming down in spinning after the frame is half full, I should assume that his trouble is caused by running a traveler that is too light for the numbers of yarn he is running (6s to 14s).

He does not state whether he is running separators, but his frames have 3-inch gauge, and his conditions indicate that he is not. However, considering the size of his ring, which is 21/16-inch, the length of his traverse, which is 7-inch, and the numbers of yarn he is running, a 3-inch gauge is not as wide as it should be to run without separators, because it will require a heavier traveler than should be run to hold the balloon down so the yarn will not beat together.

When separators are used, fuzzy yarn, such as he says he is having, is often caused by the traveler being light enough to allow the yarn to beat against the separators excessively. Where separators are not used, the same condition is caused by the yarn beating together, as "Y. S." says, and this of course will result in a number of ends being torn down. I believe "Y. S." will notice that as the bobbin fills up, being warp wind, that the fuller it gets the less tension there will be on the yarn and the greater amount of ballooning he will have. This accounts for his having the most trouble after his bobbin is half full.

C. R. H. (S. C.)

EDITOR COTTON:

In answer to "Y. S. (Ga.)," who has trouble with ends coming down on spinning when the frames are half-full or over, I think his trouble is that his rings are too large. He says he is using a 21/16-inch ring on a three-inch gauge frame. This leaves only 15/16 of an inch, and would give only 15/32-inch for a balloon, and this is entirely too small for a warp wind frame.

His trouble, he says, occurs after the frame is half full, which goes to prove that his rings are too large, as on a warp wind frame the strain is the greatest on the beginning of the doff and, after a frame is half full and over, the traveler becomes too light, causing the ends to whip together. Even if he had a four-inch gauge frame, a 21/16-inch ring would be too large to spin 14s yarn. He should not use over a 17/8-inch ring.

To prove my argument, if he will measure the diameter of the bobbins spun on the 21/16-inch ring, he will find they are not over 17/8-inch, as he would be unable to run

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a frame full on warp wind, with a three-inch gauge frame and 2 1/16-inch ring. If he would put on a 1⅞-inch ring, instead of running his front roller 132 r.p.m., as he states, he could put it up to 164 r.p.m.

I have several frames with 1⅞-inch rings that I have recently taken off and put on smaller rings. If "Y. S." is interested to that extent, and wants to make a test, I would be glad to loan him a frame of rings to show him just where his trouble is. I might say in closing that I am spinning 22s warp with a 1 13/16-inch ring, filling wind, and my front roller is making 148 r.p.m. M. C. (GA.)

EDITOR COTTON:

In regard to the question of "Y. S." as to yarn running bad after the frame is half full, I would say that with his 3-inch gauge frame, his 2½-inch ring is entirely too large, even with a No. 2 flange, and I don't see how his spinning runs at all on that size ring with a No. 1 flange ring. On this 3-inch gauge frame I would say that a ring 2 inches in diameter is about the right size, and on yarns under 14s I would prefer a No. 2 flange.

Another thing that will make this work run bad is too much twist. Too much is even worse than not enough. I don't know what make of frame he has, but H. & B. standard spindle speed on 12s yarn is 7,750 r.p.m., and the front roll speed is 150 r.p.m., so you can readily see how much twist over standard he must have with his spindle speed of 8,110 r.p.m. and a front roll speed of 132 r.p.m. Any little unevenness in the roving will immediately snap down if there is excess twist in the yarn.

As to his 7s yarn, I would say practically the same thing, in regard to twist, only this is not as bad as the other, because with 6,706 r.p.m. he is 400 r.p.m. over standard on his spindles, and with a front roll speed of 164 r.p.m. is 4 r.p.m. over standard. I think his main trouble here, though, is that his 2 1/16-inch ring is too big for the number of yarn and gauge of the frame. The yarn will beat its life out against the separators. This is a very unusual case, though, because 90 per cent of the time in running warp wind, the yarn runs worse when starting up than when it is nearly full because the pull on the yarn is so much greater. B. T. (GA.)

Licker-in Grinding and Some Other Things.

EDITOR COTTON:

I am a regular reader of COTTON and certainly am interested in the "How Other Men Manage" department, but first of all I read "Old-Timer's" page. I consider his writings worth more to me than the price of COTTON.

I see that "C. C. (N. J.)" advises "U. J. (N. C.)" to lay off of licker-in grinding. I consider that good advice as the only way I can find to make a dull licker-in do good work is to have it re-wound. I find the licker-in speed of 410 r.p.m. will give me about the best work, with a cylinder speed of 155 r.p.m.

I notice "Contributor No. 812" wants to know what effect worn bolsters and spindles on fly frames have on the breaking strength. If he will find a worn bolster on the spindle and watch it wobble awhile, and then take the roving off and look at it, he will find it is not twisted as hard as the other roving. It is also crossed up and will not unwind off of the bobbin without breaking back once in a

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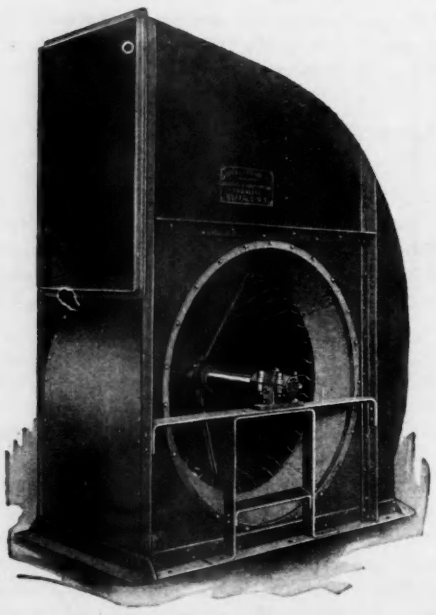

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while. If it doesn't break it will pull so hard it will stretch, making thin, weak places in the yarn.

I am like "T. A. A. (S. C.)," I think "Wash" is the only person who ever found a tight poker bar to slacken the ends on a frame. I have been around H & B frames for seventeen years, five years running frames and five as fixer, and seven as overseer, and I have not seen it yet. I see some of the fellows are still trying to learn how to find the cause for speeder smash-ups. I find a good oiler is the best preventive. Also I instruct my oiler to keep a good look-out for nipped gears, or loose bolts and nuts, and report to the fixer at once if he finds anything wrong.

E. C. (N. C.)

More Suggestions on Systematizing.

EDITOR COTTON:

This is a reply, insofar as it may be construed as such, to "W. O. R. (Mass.)," whose article, "Suggestions on Systematizing," appeared in the May issue of COTTON.

The suggestion for systematizing speeder tender's work as outlined by "W. O. R.," has merit probably when used on fine work. As to the exact point in regard to the number of the work, where it would begin to be practical, I dare not say. However, I will give an experience of my own which occurred while doing systematizing work at a certain plant, from which your readers may make their deductions.

The conditions as I found them in this card room were as follows: one tender operating two 9x4½-inch intermediate frames of 86 spindles each, 1.70-hank roving being made from .56-hank slubber roving. Creeling per frame occurred every nine hours, and doffing per frame every two hours. Time studies—made on the best tender—showed that it required 41 minutes average to creel back and front of a frame, and 6.75 minutes to doff unassisted. This doffing time does not include marking or laying up bobbins, on the carriage. Our humidity conditions were ideal, being 56 per cent relative, from which figure there was a variation of no more than two per cent day in and day out, so of course the work ran well, averaging two ends pieced per hour per frame. Our working day was 9½ hours.

From the foregoing data we concluded that one man could do all the creeling on nine frames, and one man piece ends and doff six frames. This would make, according to our figures, both the creeler's and the doffer's work amount to about six hours per day. On paper this outline appeared fine, so we went ahead with a test job on six frames, which we ran for a week. Here are the results and difficulties as we found them:

The continued effort of creeling proved too much for two of our huskiest men, whom we tried in turn, the heavy weight of the bobbins, or rather their number and the constant bending over being given as the reason; the man doffing and piecing ends got along fairly well, except that production dropped to 88 per cent of normal, due to the fact that doffing was interrupted while ends were being pieced on another frame. The job of piecing ends was generally preceded by a sprint to reach the machine before further damage was done, a rather hectic job for the doffer, everything considered.

After giving the results of the tests every allowance possible for the newness of the job, loss of production through conflicting doffs, etc., we were forced to abandon this method as unpracticable; and in its stead we gave each tender three frames on which they would do creeling, cleaning, doffing, etc., as they formerly did on their two frames. This worked satisfactorily with very little loss of production, and was not too much of a job for the operative.

I might say before closing that we also considered combining the jobs of piecing and creeling, but this combination would be even worse than piecing and doffing as the creeler spends three-fourths of his time in back of the frames, and of course could not see when an end broke down. Also he could not leave the frame he was creeling to go elsewhere without first stopping the frame, or the roving would run out.

N. N. (N. H.)

Two Sets of Lease Rods at the Slasher.

EDITOR COTTON:

I read in April COTTON about a man noticing two sets of lease rods at the slasher. I have been using two sets of lease rods right along, on colors and white work. Our second set of lease rods is put in by means of the beamer at the warper picking a half-lease when the warp is finished. It is put in about 20 yards from the end of the chain, which enables the slasher man to put in his lease rods to separate each section beam when laying-in. After the set is laid-in and ready to start, these half leases-up which the beamers or warper tenders put in and that divide each sheet of yarn in half, prevent taping. Anyone using two sets of lease rods is doing a wise thing and won't be troubled with taped ends.

I also noticed the letters in COTTON about yarn and lint sticking to the cylinder, and what "H. J. (Ga.)" said about cold starch and the lack of lubrication. He is right, but one thing I found out when I had the same trouble was that the cylinder to which the yarn was sticking was not relieving itself of the water, which caused the yarn not to dry and large surfaces of starch and lint were formed on the cylinder. When the slasher stopped to doff the yarn would dry perfectly, and when started up again the yarn on the cylinder would pick up all the lint and cause smashes in the comb. I would be interested to know how the man in South Carolina made out with his problem.

F. B. (CONN.)

EDITOR COTTON:

In reading the April issue of COTTON, I notice several things that are very interesting to me. First is the article by "T. S. (Mass.)" stating that on a visit to a certain mill he saw for the first time the running of two lease rods at the slasher.

I take it that the mill is on heavy grey goods, as he states the half lease was put in at the warping frame. This idea is quite old, and is a considerable help on some styles of heavy sets of coarse yarns. About 28 years ago the writer worked for the Warren Company, West Warren, Mass., making all heavy colored goods, denims, broad draperies, solid colors, all dyed in the long chain. On these sets there were from 480 ends up on the sections or warps. In beaming these styles the beamer tenders picked a half lease—in other words, put a string through every other end. We called that splitting the sections—about four yards from the end of the chain. These sets were placed in the slasher in the regular way, and section strings put in as usual, and counted in at the front of the slasher from

the solid sheet of yarn. The first or dividing string being just up over the tin roll. After laying-in the set, having set the size rolls ready for business, we fastened the yarn to the loom beam and moved the machine on slow speed, putting the regular section or splitting rods in. By the time these were in position, the split strings showed up—of course, the extra split rod holders were in position. The first one was on top, the next a bottom and so on. At this particular mill there were hardly ever any laps to be cut at the slashers. The beaming had to be correct, and the results were satisfactory.

But to have double lease rods on the slasher in some mills would be disastrous. The old argument comes up again here, regarding lap cutting on section beams. Suppose one is running a set of yarn that has been handled poorly in warping and has split section rods at the front. Every lap cut at the beams goes in with the thread onto which it is stuck. It is utterly impossible for the cut lapped thread to take its former position on the rod, or one up and one under. As I have already said, it is fairly good on positively good section beams, but a complicated affair on fine work and poor warping.

"T. D." mentions that at the mill he visited, heavy work was being run on the slashers and as many as ten ends in a dent. I do not know how heavy the sets were, or the number of the yarn, but there should be no surprise at the results secured from warps slashed with a sheet composed of ten to the dent. If I had to slash 4,000 threads of coarse yarns, white or colored, I'd never think of split sections. I would have at least eight beams and probably ten, placing the beams at the back of the slasher in two sets—if eight beams I'd place four laced up as one set, nearest to the size box, and then place the next four with a top beam first (missing the bottom stand), and place a roller between the sets just a little above the top of the back beams of the front set. This would keep the two sets separate until they strike the size. I would put section strings in as usual, making certain to put the one between the two sets first, and start up as usual, with a good level sheet. When the dividing string reached the front, I would put in a large rod. There are thus two individual sets. Not the same as if one had laced all of the eight or ten beams as one set.

If the raddle or comb is used, and one must have ten ends to the dent, proceed as follows: Count five from each sheet, which is ten, or if the comb can take eight ends, count four from each sheet, lay in all across, get the loom beam in position and the size box, rollers and steam ready, move the machine to tighten up the yarn, slip a small wooden rod in between the sets at the back of the expansion comb, take a double string picking up the bottom four or five ends in each dent in front of the comb, and there is a lease. Have two steel rods, flat with smooth beveled edges, a few inches longer than the full width of the loom beam. These rods may be fastened to the comb floating between the comb and spreading bars. Have a hole bored near the edge of each rod, and a wire can be used to fasten with, having about ¾-inch space between the lease rods. The rod nearest the comb is in the open shed between the two sets. The one in front has the bottom shed running over it and the top shed under, which amounts to five in the dent.

Yarn slashed in this manner has no chance to roll as the rods keep the threads in position all the way through. I should have stated earlier that with four beams in each set, three rods will be above the split rod and three below, I suggest that "T. B.'s" friend's trouble was mostly caused from rolling of threads by having so many ends in the dent.

MACK (GA.)

Taking Advantage of One's By-products.

EDITOR COTTON:

Here comes "Old-Timer" again, in the May issue of COTTON, wanting me to work double time to make a success in life, when I'm so doggone tired at stopping time that I can hardly sit up. When I first read his article on "by-products" in the May number, I pinched myself to see where I stood, and I found out that I wasn't so busy as I thought I had been. I was supposed to be busy, but I was too "busy" running around places, not taking time enough to observe each condition as I approached it and correcting things at that time and place. This gave me too many things to go back to and do later. So I began to observe and found out that a lot of my "tired feeling" was due to my not taking time at the moment to call attention to things and have it over with. And now I find that I am not really so tired out at the end of the day, and I'm ready to make better use of my spare time. "Old-Timer" hits us pretty hard sometimes, but when we begin to see things as he sees them, and examine ourselves, we invariably "give in." Hats off to him!

By-products? What are a man's by-products? They seem too numerous to mention, for there are almost as many kinds of by-products as there are men. And the reason "Old-Timer" calls our attention to them is that hardly any man ever accumulates too much from his hours for the company. There might be a trade he might operate, or an invention he might perfect that would be valuable, or we might study over some problem at night that we couldn't study in the day-time. That is a matter for each individual to decide. But it should be something that will make him more efficient.

We too often give a situation a casual glance, and when we see that the machines are making bad work but are still running all right, we are inclined to let them alone. Machinery should have a close inspection every day, and in some cases, more often. If we put in a little more of our "by-product" time those bad places that cause complaints would not always get to the buyer. And the more I think about it the more I believe we are not using our best efforts during our regular hours of work. Of course *we* think we are "putting out," but *are* we? Every day we can see what we should have done yesterady.

Tell "Old-Timer" to keep it up, and let it hit whom it will. We'll take our medicine and try to be benefited thereby.

CONTRIBUTOR NO. 14.

Overcomes Slasher Cylinder Trouble.

EDITOR COTTON:

In the March issue, you published my question as to why the yarn was sticking to the cylinder on my slashers. I am pleased to tell you that the answers of "H. J. (Ga.)," published in the April issue, and "Mack (Ga.)," were of much benefit. I overcame the trouble by decreasing the speed and adding more softener, which was suggested by these readers.

Y. W. (S. C.)

Knitting Section

Fancy Half Hose

B-Vertical Floating Striping Machine
B-Vertical Floating Striper and Dot Machine

***B-6 Machine**
***B-7 Machine**

THESE machines offer a variety of styles and colors to meet all demands.

Simple patterns may be produced on these machines as well as the more comprehensive styles containing a multiplicity of colors, checks, dots, etc., incorporating in one machine the advantages of all these desirable features.

*Models B-6 and B-7

These machines are built with six and seven yarn feeding fingers, respectively. These machines are of floating vertical stripe design.

The vertical stripes are produced by groups of knitting needles knitting with one or two yarns used for plaiting, thus producing a perfectly clear and positive vertical stripe of a greater width than can be produced with reverse plaiting needles, particularly when using worsteds or soft yarns on coarser gauges.

The vertical stripes can be located throughout the circumference of the stocking as desired, by the use of jacks under the needles to produce the vertical stripe of the width desired.

These machines will produce horizontal stripes of any design of a multiple of twenty-four courses if two or more course width stripes are desired. Any pattern of single course stripes that is a multiple of twelve courses can be designed.

The vertical striping attachment on these machines is so arranged that when making plaids or checked patterns small squares can be inserted in the middle of the check or vertical stripe.

The above machines can be set up for either men's half hose or ladies' hose, if desired.

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NEW ENGLAND SPUN COTTON YARNS

We Spin Cotton Yarns in All Numbers from 1's to 100's.

We Twist these yarns in Any Number of Plys desired from 2 ply up.

We Furnish these single or twisted yarns to suit your own particular purpose. Any Twist you say.

We furnish them on Cones, Tubes, Spools, Bobbins, Warps, Beams, Skeins—Gassed or Ungassed.

We can furnish the above from any Staple Cotton you desire.

COMBED and CARDED AMERICAN or EGYPTIAN

and behind all this an Organization that has been Spinning Yarns for Years and Years.

We recommend

QUISSETT QUALITY YARNS

SPUN FROM

EARLY BLOOM COTTON

QUISSETT MILL

NEW BEDFORD, MASSACHUSETTS

80,000 SPINDLES

QUISSETT MEANS QUALITY

Hosiery Mill Organization

BY WILLIAM DAVIS, M. A.

The term "factory organization" is a wide one closely allied to such terms as efficiency, coordination and correlation, of which much has been heard in the post-war period. In an orgy of committee making, the aim was always to "correlate" existing agencies and prevent over-lapping. The term "efficiency" has been similarly subjected to a prolonged period of use, while closely related to the same sphere of activity may be mentioned motion study in textile concerns and the use of psychology in selecting workers.

Now that several of those phases have passed their fullest intensity it may be opportune to sort out some of the leading ideas which are left clear and distinct in the mind. That much can be gleaned from those movements in industry is without doubt, but such ideas must be applied with good sense and discrimination and the attitude of the worker must be carefully studied. Many schemes of organization tend to regard the workers as members which can be handled like so many pieces on a chess board, all being placed in position by the master mind in control of the game. It is quite certain that unless the active cooperation of the worker can be obtained in these schemes, they will be rendered of little effect.

Without doubt one of the most important things in a factory is to staff the concern with efficient work-people and a loyal staff, and observation of a large number of factories reveals great differences in this respect. We have all known factories which have come to a premature end owing to mistakes made in staffing the concern with efficient workers. Observation of a large number of factories and their personnel enables one to classify the workers and staff in certain well-defined categories. In some cases the managers are of much better caliber relatively to the workers and in others the general type of workers seem to do more than credit to the managers.

In regard to managers and foremen, their proper selection is a matter of vital interest to the concern, and the head of the firm has a heavy responsibility in seeing that he surrounds himself with the right sort, in fact he eventually gathers around him the kind of staff which he deserves. The overbearing man will only be able to retain a staff who will submit to his outbursts, while another who does not relish straight-forward talk on the part of his managers when things are not going well, will be left with those who are ready to bow to his ideas in every case even against their better judgment.

Many owners show a lamentable lack of insight in selecting their staff and they are frequently drawn by certain surface attractiveness, when the ruder and more direct dealer may prove more efficient. Similarly we find managers who are carried away by surface qualities in the work-people they select, or in dealing with others in the course of business. For example, the manager who allowed a firm of agents to fog him with cigars and free lunches, with the result that the factory was filled with types of machinery which did not suit the class of trade for which the firm catered.

Observation of the type of young people in a factory shows that some concerns seem to select all the more intelligent workers, while others have their firms staffed with young persons of dull mental powers or of inferior personal characteristics. Some firms refuse to do their share in training work-people for the industry and eventually find themselves staffed entirely with middle-aged and old operatives. In such firms one finds a certain lassitude pervading the workers, and there is no doubt that it pays a firm to take its part in training new operatives for the industry and to mingle the cautiousness of elderly operatives with the more ardent spirit of youth. Each firm should devise some means of giving encouragement to its younger men and so derive benefit from the initiative and fresh ideas which such should bring with them.

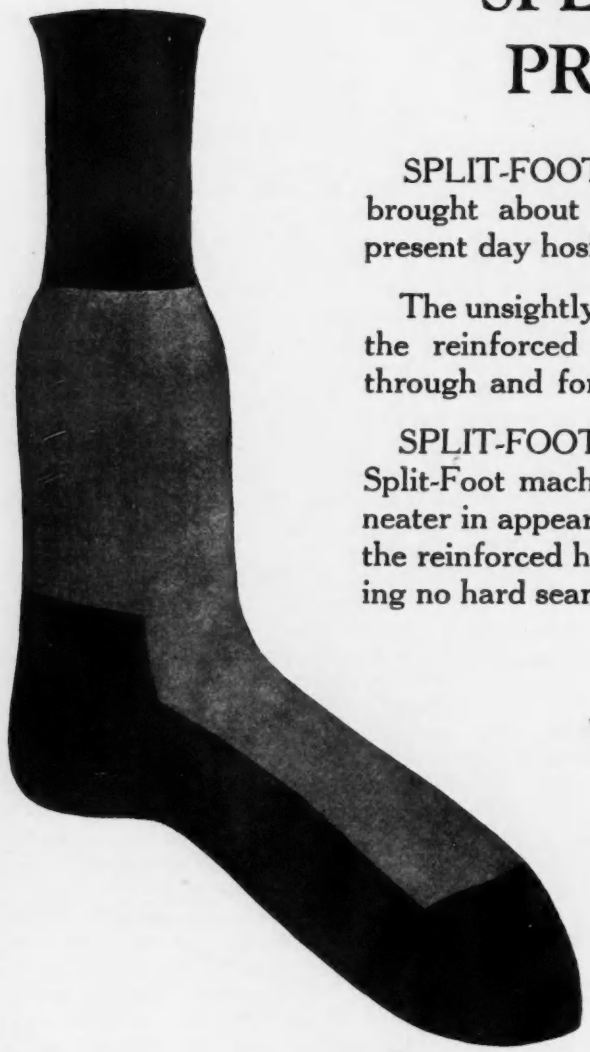
The kind of workers which a firm acquires is in many cases determined by very fortuitous causes. Frequently workers who happen to apply when a vacancy occurs are engaged to avoid the trouble of letting the fact be widely known and subsequently making a careful selection from the most suitable candidates. Many firms are now aware of the importance of this and the selection of work-people is placed in the hands of a welfare or other official of the company, who holds that position by virtue of his judgment of character, and who can devise simple tests which will give a clue as to whether the candidate will prove suitable for the kind of work in prospect. But responsibility does not end with the employing of the young person. This should be followed up by a period of direct supervision before the new worker can be considered to be filling his or her place in the mill, and a period of probation may be desirable. It often happens, for example, that a boy who seeks a position in the machine or manufacturing departments may be better fitted for the office or the warehouse, while others in the latter departmnts might, on account of notable manual dexterity, and natural aptitude for mechanism, render more efficient service in the frame department.

Those in charge of textile departments can affirm that from one factory they obtain practically all their students, while from others few or none are forthcoming. This shows a higher level of intelligence in one place as compared with another, a state of matters which may be due to want of insight by those responsible for engaging the workers. It may also be due to the paucity of inspiration afforded by the higher direction of the firm and this certainly has the effect of lowering, permanently, the level of intelligence displayed by the firm's personnel. In some cases it is found that those who are responsible for giving advice on vocational training are strongly biased by the type of instruction which they themselves received when learning the business and they tend to forget that an exactly similarly restricted training today will prove totally inadequate for the rapidly changing conditions in industry. Narrow specialization should be preceded by a prolonged period of general training in the principles applying to various branches of the business, which will render the specialization which follows all the more effective.

Observation of factory organization in certain foreign countries reveals some pronounced tendencies in given directions. In the mills of Austria, there is a great gap between the workers who are often of rather poor quality

The "BANNER"

SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

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and the managers who are in many cases technical high school or university trained men of exceptional qualifications. In the mills of the United States there is a greater degree of equality between master and man and they mingle more freely. The sons of the directors, even of very successful and lucrative businesses, are in general subjected to an intensive practical training in each department of the factory and warehouse, having to take their part in working machines to the recognized standard of production. This impulse to "make good" in the factory is very widespread and gives a zest to such concerns, as those responsible have been "through the mill" and know what the plant is capable of. German factories often make a fetish of extreme cleanliness, frequent washing of the floors and sweeping being the rule along with rigid regulations regarding work-people as to overalls or uniforms of a certain cut and style. In the French industry less attention is given to externals, but an intense concentration on essentials is evident. This feature is noted in machines made in France, where the vital parts are of infinite accuracy and faultless in material and finish; the non-essentials such as racking pawls and winding-up tackle function rather noisily and are finished in what would be, to the British mind, a rather rough and ready manner.

In the engineering industries of the United States a great deal of attention has been given to what is termed "motion study' and this must engage the attention of managers and workers everywhere if the best results in production are to be achieved. In the old hand-frame days, the workers were keenly alive to the minimum motion cycle as an aid to greater speed of production. Even the expert worker could not earn a satisfactory wage if he had not mastered the essentials of "meeting the presser" on the frame. Two principal motions in the making of a course of loops on the hand-frame most naturally follow each other by a fraction of a moment, but with skill they can be run together, thus saving in the aggregate much valuable time. Workers often spend their lives in factory occupations without achieving the most direct way of doing their particular task, and a short course of training in the minimum number of motions required for each operation would result in great good to the firm and incidentally augment the earning capacity of the operative.

Very casual observation of workers in a factory shows that wide variations in performance exist between one person and another doing precisely the same operation. Now the matter of motion study must be applied with caution and insight, and if possible the cooperation of the worker must be invoked; one must show, for example, that she will be able to get through her work with less fatigue and that she will also be able to earn a higher wage under the improved method. Anyone who has had charge of a large number of workers knows that it would have been much better if certain members had been diverted from certain occupations after a short period of probation, for no amount of practice seems to render them efficient. On the other hand, few workers, except the chronically inept, cannot find their place in a hosiery mill. The rapid, adaptable individual will find congenial outlet for her energies in the working of sewing or seaming machines, or on the manufacturing end of the plant, while the more contemplative may find the repair departments more congenial, and their patience will be suitably employed in this type of

Your Problems
are ours as well

THIS is the day of service. We therefore do not limit ourselves to the manufacture of

Artificial Silk

although we have done our best to turn out a product whose quality, we believe, is second to none.

But in addition we ought to know something about the use of this product—*and we do.*

Many a textile organization can vouch for the fact that we have offered it real cooperation in the actual handling of our yarn.

Perhaps we can be of assistance to you in getting the most out of this fibre.

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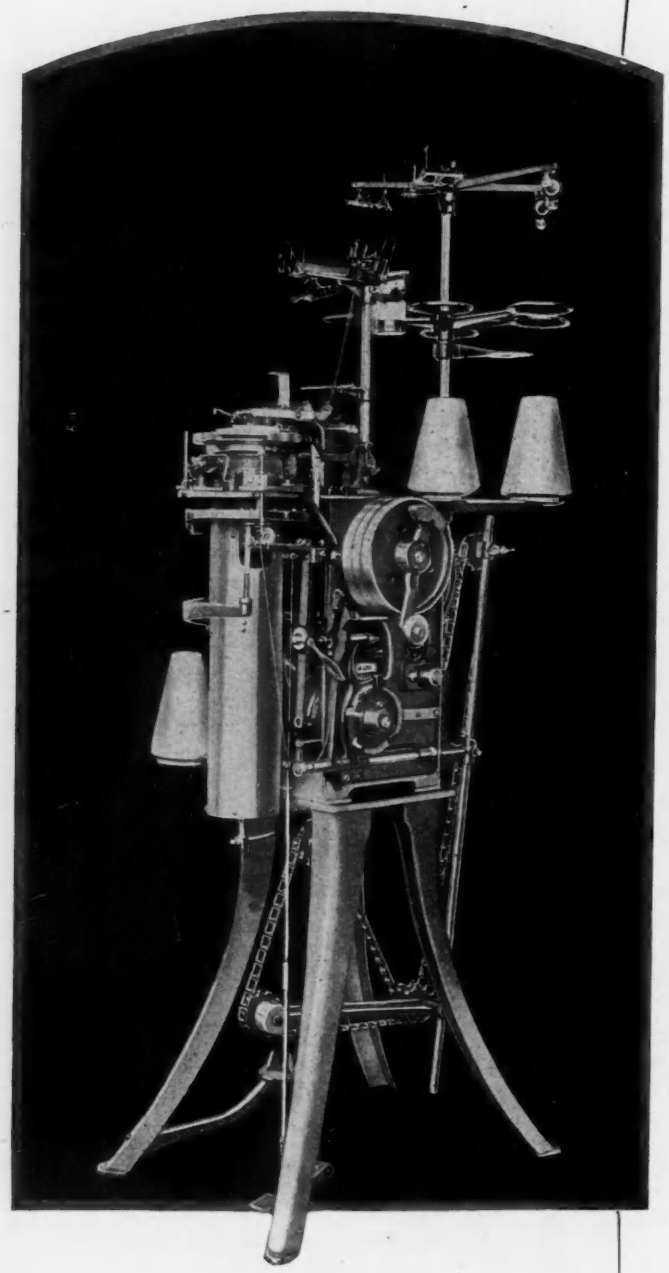

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Write today for booklet entitled

"A New Type of Hosiery"

This booklet will explain to you one of the most important developments in hosiery manufacture which has taken place in years.

It gives you the facts you want to know and ought to know about how the quality of hosiery can be improved, and sales increased.

Information regarding the Wildman Spring Needle Knitter will also be sent you. This machine is showing rather remarkable results for many manufacturers, in production and quality.

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We have issued a complete and informative book, "The Science of Knitting," Price $2.00.

work. Others may be better employed in such operations as winding and with better results.

In many cases too little attention is given to the physical well-being of the growing young workers and many managers do not sufficiently realize that the fuller development of the physique of their young people is to a certain extent in their hands. Many firms have their own recreation fields for the usual types of sport, but widespread good can result from sympathetic study of the conditions under which the workers perform their duties. In observing workers from certain factories, one can note that they have developed minor deformities in the course of their work. Some have their natural growth impeded by being asked to bear burdens and transport material in weights too heavy for their growing frames, others sit at their machines in a distorted or cramped position which results in one shoulder being higher than the other; in other operations the sight is permanently injured by the wrong angle at which the light strikes the eyes of the worker. Lavatory accommodation is often very defficient and the susceptibilities of young workers are often tried by the exposed position of the conveniences in a mill. In other cases machines are installed which by their style of construction cause the fiber and foreign matter present on yarn to enter the lungs and get into the hair of the workers. In others machines are placed so that the operator has to do a great deal of bending in the course of the ordinary operations which in the aggregate accentuate fatigue and lassitude.

The position of the worker in relation to the machine is to a certain extent within the control of the manager. Certain types of knitting machines can be raised on blocks, to suit a tall worker, while short workers can often be mounted on a stool to raise them into a comfortable position for doing the work. In the former case round shoulders are prevented, and in the latter the worker is saved from craning her neck or occupying a position of undue strain in relation to her machine. The manager can also rectify deficiencies in lighting, these being often in the form of brilliant lights placed at such an angle that the reflection passes straight to the eye of the worker instead of coming from behind. The softer and more diffused lighting of workrooms now being adopted by progressive concerns contributes greatly to the well-being of the operatives by lessening eyestrain.

General observation of a number of factories in Great Britain shows that a large proportion of the staff are engaged in transport in some form or another. In office and warehouse departments, one is struck by the large number of people who move about carrying small bits of paper, running up and down steps with these missives from one department to another. Others transport small lots of garments to the banging of doors and the creation of draughts which produce a violent fluctuation in the temperature of the workroom with consequent injurious effect on the health of the workers. The writer can well recollect visiting the headquarters of a large American company, and although a vast amount of intensely concentrated business was in progress by an enormous staff, one did not see any of this rushing about with small bits of paper nor did we have the banging of doors and general hubbub which so often passes muster for hard work in a factory. By vacuum tubes, elevators, and conveyor systems all this hubbub was avoided and the staff were enabled to direct their energy to the vital parts of their work.

BRINTON RIBBERS

possess all modern improvements, including selvage welt, French welt, double knee dogless and striping attachments, with automatic stop motions.

Built in all sizes for all classes of rib work.

We also build hosiery knitters and Body machines for underwear and various other circular machines for all kinds of knitted articles.

Samples and prices on request

H. BRINTON COMPANY

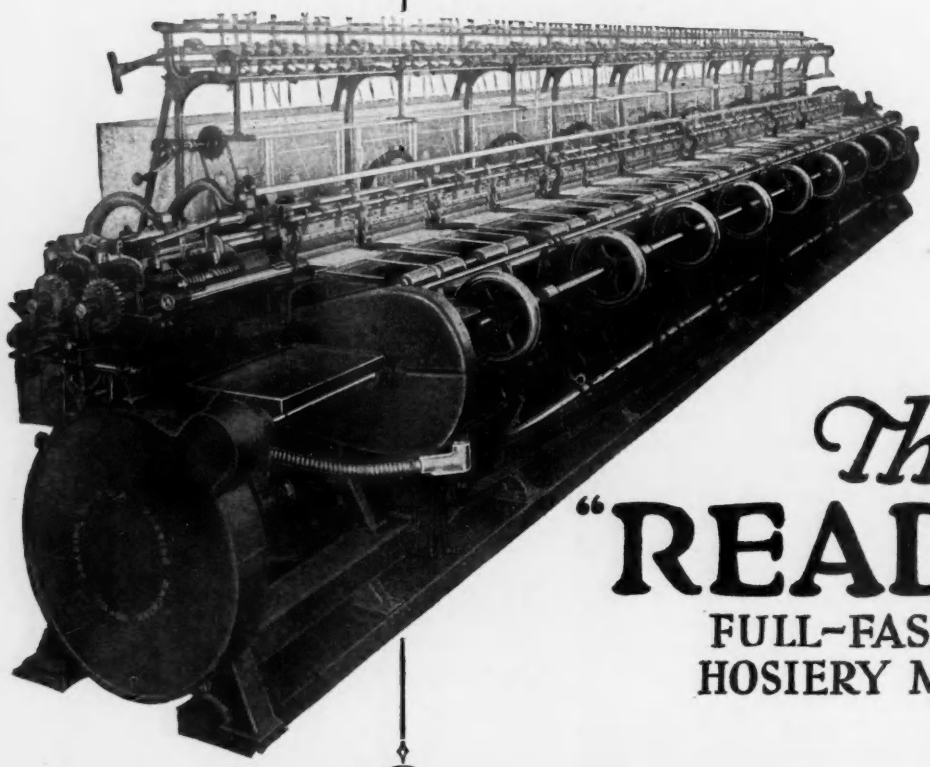
Kensington Ave. & "M" Street

Philadelphia Pennsylvania

Bigger Production—

THE "Reading", over a period of years, has been constantly improved to meet the most exacting requirements of manufacturers of ladies' fine silk stockings. The new chain drive assures bigger production and finer fabric. Also, wear and tear on both motor and machine are reduced to a minimum.

TEXTILE MACHINE WORKS
READING, PA.



The
"READING"
FULL-FASHIONED HOSIERY MACHINE

In a hosiery mill much of this scurrying about is due to faulty planning of the different departments of the factory in relation to each other. It is often found that garments have to traverse and retraverse the same part of the factory several times during their routine, while there are frequent changes from one floor to the next. An explanation reasonably advanced in some cases is that the factory has grown in a haphazard manner with no adequate room for extensions, but it is clear in many cases that a little foresight could have devised a more natural sequence of departments in order of process when the work would follow in one direction from one operation to the next.

The ideal arrangement is to have the factories built on a flat system only possible in districts where land is plentiful and cheap; in crowded manufacturing centers, the shortage of accommodation can, in many cases, be solved only by erecting new floors. In such cases the method to aim at is to start the operations at the highest point and have the goods flowing downward through the factory with the warehouses and dispatch offices on the ground floor. There is one case where this is scarcely possible, and that is where the firm do their own dyeing and finishing. These processes involve the use of liquids and steam which produce grave results on knitting machinery by rusting the needles and other parts of the machines.

Much good results from a periodical inspection of the factory to detect wear and tear in machinery and equipment. After a period of work, machines and their driving parts begin to develop minor irregularities of motion, the bearings of countershafts have a knack of working loosely and beginning to rock, line shafts also get out of true, and observation of an end of such a shaft will show that it is describing a more or less elliptical orbit in place of a true circular one. Friction brings the parts out of alignment and squeaks and rattles develop with unsteady working which affects the quality of the product, particularly in fine gauge fabrics. Listening to the noises made by well-known members of the equipment of a hosiery mill shows that certain machines are capable of much improvement in regard to more silent running, and recent investigations show that factory fatigue is contributed to by the rattle and jingle of machine parts. It often happens that machines performing minor operations exhibit those rattling tendencies in a most marked degree and by improved design it should be easily possible to reduce or eliminate these noises.

The possession of a good ear by a foreman of a machine department or mechanic is a valuable qualification and such a member of the staff can often detect wearing of machine parts before a breakdown occurs. He can thus take preventive measures and effect minor repairs in time which save the firm considerable outlays.

The Textile Color Card Association has released its 1925 Fall Season Color Card for general distribution. It is the largest seasonal card ever issued by the Association and contains 100 colors with six shoe and leather colors in supplementary form. Emphasis is given to ensemble colors which for the first time are shown in wool and silk fabric of the exact shade. Of special interest is a comprehensive group of fourteen colors composed of shades which have been selected as the dominant millinery colors of midsummer and early fall.

Printed Effects on Hosiery.

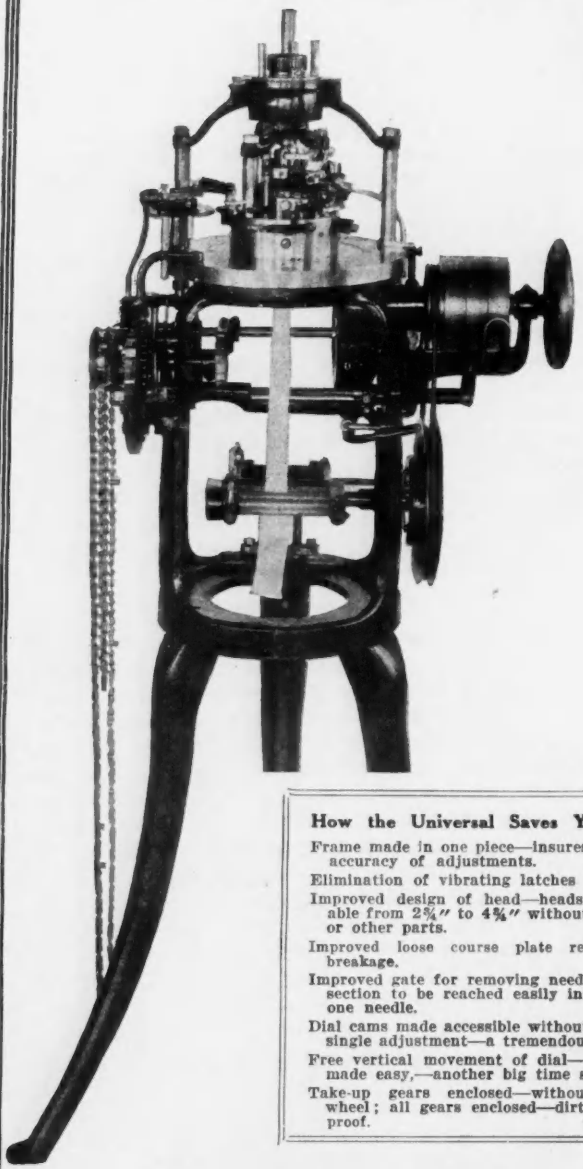
So many new effects are being produced in printed hosiery that it seems the well equipped printers are assured of a steady supply of work so long as there exists a market for novelties. An owner of quite a lot of women's black silk stockings that were not moving because of their color, had a Philadelphia printer put them through a process whereby a wave-like effect was produced, so that the hosiery, while still black, was found to be salable on a profitable basis. In another instance women's plain mercerized hosiery knitted with a needle out and others in drop stitch left the printing press with horizontal narrow lines in like shades, the goods so printed being a very clever imitation of a knitted in pineapple or cross stitch. It seems an easy matter for the well equipped hosiery printer to convert an unsalable plain stocking into a fetching novelty. A woman's plain top knee length stocking carries a printed garter effect and is embelished with printed designs in the way of buds, roses, and sprays, birds and butterflies. Hosiery printers use what is claimed to be an indelible ink that is as lasting as a fabric. The Keystone Dye Works, Philadelphia, a short time ago was so well supplied with orders for printing hosiery that it was found expedient to close down the dye plant for the time. Ordinarily, when the plant is not overtaxed, printed hosiery is ready for shipment within 48 hours from the time it was delivered to the printer in its plain state.

The location of the new Chicago cotton market on the floor of the Chicago (Ill.) Board of Trade is an especially fitting and suitable one. This exchange began on December 1, 1924. With the course of the empire gradually moving westward, the production of cotton has developed in the same direction. This new exchange forms a link between the Southwest and the North in closer commercial ties than have existed as to cotton.

The rules of the Chicago contracts will follow those of the New York and New Orleans exchanges as closely as possible, it is stated. The joint ports of Houston and Galveston, Texas, it is announced, are the sole points of delivery. Through this arrangement a proposal of the Federal Trade Commission for southern warehouse delivery on future contracts was put into effect. By confining the deliveries to these two ports, this new exchange planned for the opportunity to establish southern warehouse delivery where stocks of cotton are abundant, and without multiplicity of delivery points. The grades tenderable on Chicago contracts are the same as those at New York and New Orleans as provided for under the United States Cotton Futures Act.

A notable belt has recently been installed in a West Virginia lumber mill by J. E. Rhoads & Sons. This is a 48-inch, 3-ply belt, 117 feet in length. The "remarkability," it is pointed out, is not in the size but in its strength, it showing a breaking strength of more than 5,000 pounds per square inch of cross-section. To make it required the centers of 175 steer hides. After tanning by the Rhoads special Tannate process, the hides were put through some 19 operations to finish the leather and prepare the belt for carrying the required power load.

The Latest Development in Ribbers



Few stops for repairs or adjustments—smooth, quicker operation—a better, more uniform fabric—low production costs—there you have briefly and boiled down the advantages of the Universal Hosiery Ribber.

Among the parts eliminated are the very ones which are so hard to keep adjusted—the vibrating latches in the dogless.

The Universal design eliminates vibration. It produces a fabric with permanent elasticity, even in stitch, beautifully finished. And it produces more tops, day in and day out with less attention, less waste, less cost.

How the Universal Saves Your Money

Frame made in one piece—insures rigidity and accuracy of adjustments.

Elimination of vibrating latches in dogless.

Improved design of head—heads interchangeable from 2¾" to 4¾" without new dogless or other parts.

Improved loose course plate reduces needle breakage.

Improved gate for removing needle, permits a section to be reached easily instead of just one needle.

Dial cams made accessible without change of a single adjustment—a tremendous time saver.

Free vertical movement of dial—"picking on" made easy,—another big time saver.

Take-up gears enclosed—without worm or wheel; all gears enclosed—dirt and trouble proof.

There's an interesting story of production savings, we'll be glad to send on request.

Fidelity Machine Company

3936-40 Frankford Ave., Philadelphia

120 Broadway
New York City

Foreign Representatives in
Great Britain
Sweden
Norway
Denmark

THE UNIVERSAL HOSIERY RIBBER

James Building
Chattanoooga, Tenn.

South America
Mexico
Australia
Japan
China

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Two Color Vertical Stripes on Hose.

EDITOR COTTON:

I wonder if some of the readers of "Knitting Kinks" can advise me how to secure the two-color stripe. We have 220-needle Banner machines, and would like to make a vertical two-color stripe of red and black, of three needles to the stripe. We are producing a one-color stripe, but now we wish a two-color reverse plaiting stripe, and we would like to know how we can make it on the Banner.

T. R. (PA.)

Getting a Long, Loose Course on Ribbers.

EDITOR COTTON:

In answer to the mill man who said in "Knitting Kinks" that he has trouble with loose courses on ribbers—that when he gets the slack course large enough for the operator to set the top quickly, he is troubled with cuts and the needles dropping stitches.

This could be caused from several different sources. I would suggest perfect adjustment of the latch opener first; if he will set the yarn guides and latch opener and adjust the loose stitch, the ribber should run without the least bit of trouble.

The difficulty could be caused by the dials being too high or too low and causing the stitch to stretch so far that it would cut out in making the loose course, or would at least give a lot of trouble with holes. We are running both the Wildman and Brinton ribbers and are having practically no trouble at all.

G. H. (ALA.)

EDITOR COTTON:

In answer to your correspondent who is having difficulty with loose courses on ribbers, will say that this, like the poor, is always with us. No matter how long the loose course is, the average man wants something longer. There is very little that can be done, as there is a limit to the length of the stitch that can be drawn on the machine, and in most cases this limit has been reached.

Unfortunately, those making the cheaper lines desire the longest loose course, but as they are using, usually, a cheaper yarn, they cannot make nearly so long a loose course as the mill that is making better grade work, and does not need the long loose course.

For all practical purposes, the loose course that can now be made on the ribbers is plenty long enough, but there are always some who seem to think that the loose course should be long enough so that the girl could throw the top at the quill ring and have it slip over the points.

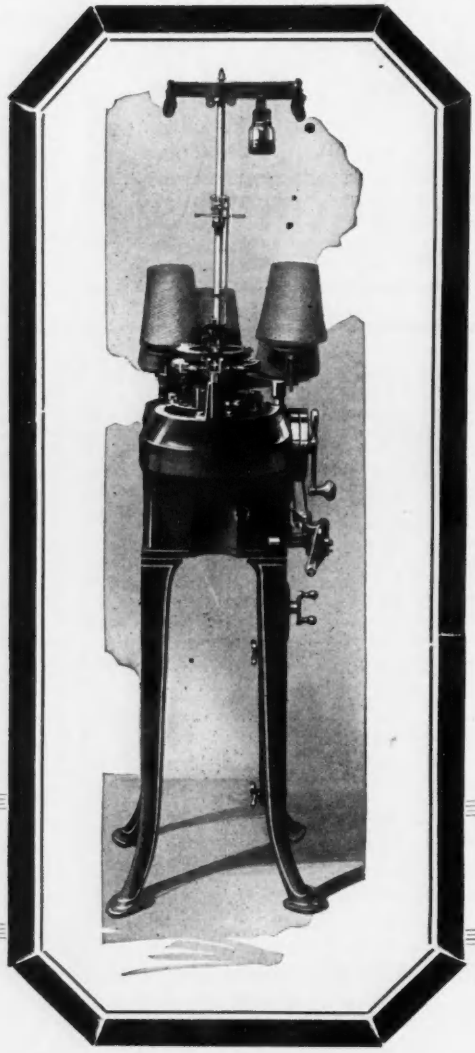
G. D. (PA.)

EDITOR COTTON:

Responding to "Contributor No. 752," who inquired in June "Knitting Kinks" regarding the possibility of getting the slack course on Wildman and Brinton ribbers large enough for the operator to set the top quickly, without having cutting and needles dropping stitches, making plain misses' and Derby rib hose, following are some suggestions:

Presuming the machine is up-to-date, and by up-to-date I mean having a dial needle lifter, the method to pursue would be to take as long a cylinder stitch as would match up with the dial stitch and then if the machine does not cut holes during the plain part of the top, I suggest that the cylinder stitch adjustment for the welt be so regulated that it will not cut at the time of the loose course. Having gone that far and the loose course not being large enough, which it would not be, then get the rest of the adjustment on the dial needle lifter. It may be that this man is keeping the needles raised too long a time while making the loose course. In other words, I have found the best method is to be able to push the dial needles up just beyond the carrier, or so that I can take, if possible, a little free yarn from the cone, and then not keeping the needle raised on the dial, but about two needles, allowing it to slide off gradually.

To help in adjusting the machine for drop stitches—after having overcome the cuts, which should be worked on first, then by gradually raising or taking off some of the down-throw on the cylinder stitch cam, and raising the dial needle lifter a little higher, I believe that the drop stitches will be overcome. I suggest that he might get even a little further by coming up on the cylinder needle through the plain stitch, and raising the dial a little higher to accommodate this, and then change the adjustments on the loose course adjusting screw and the dial needle lifter. I have found that in some cases, especially on mercerized yarn, where a disk tension is fastened on the yarn carrier bracket



STANDARD
HOSIERY MACHINE

NEW DEVELOPMENTS *of a* PROVEN MACHINE

The STANDARD H Knitter is a high speed plain hose machine. To meet the demand for fancy hose, various attachments have been designed to produce novelties on this Standard H Machine. We particularly emphasize H-2F, a two feed machine combining Novelty hose with a production that is unparalleled.

Write us about these Machines:

(1) Two feed half hose machine with horizontal attachment.

(2) Two feed sport hose machine with cuff top attachment.

(3) Ladies machine with attachment for lace or pineapple stitch.

(4) Machine for block pattern effects produced by reverse plaiting.

(5) Vertical stripe machine with horizontal yarn change device.

(6) Infants Machine with horizontal stripe attachment.

(7) Nye & Tredick Underwear Machine.

(8) Sweater Machine for knitting fancy block patterns

STANDARD-TRUMP BROS. MACHINE CO.

Main Office and Factory, Wilmington, Delaware
Show Room 121 NORTH BROAD STREET, Philadelphia

it has helped the drop stitch condition.

This is as near as I can help him on the adjustment without seeing the machine. I believe if he will follow these suggestions he will be able to reduce the amount of his waste. I have also always found that a sharp-pointed cam will help materially. Y. C. (PA.)

Employee Training and Turnover.

EDITOR COTTON:

Employment conditions and problems should be of much interest to the knitting mill executives who read your magazine. I therefore will try to outline some of the ways in which we are trying to meet our own situation. We have conditions that probably coincide with those of some other mills, and if I can give something of help to them, I shall be glad.

To understand our labor problems, the hosiery manufacturing geography of this particular locality must be known. Within a radius of a few miles there are four full-fashioned hosiery mills. Ours happens to be the pioneer and also is considerably the largest, so that our procuring

Position Wanted — APPLICATION — Date

Name					Nationality	Age
Address					Date Naturalized	Tel. No
Single	Married	Widower	No. in Family	Trade or Occupation	Date First Papers	

PREVIOUS RECORD

EMPLOYED BY	POSITION	DATE FROM	DATE TO	SALARY	REFER TO

Other References

Remarks

EMPLOYEE RECORD

Name No.

Address Telephone No.

Address Telephone No.

Address Telephone No.

Employed by

DATE	POSITION	SALARY		PER	DATE	POSITION	SALARY		PER

Date Left Date Discharged

Record and Remarks

Fig. 2. Application Card and Employee Record.

of sufficient local help in time of need is consequently problematical. There are three large knitting centers comparatively near to us, but they are large cities, and we have found by experience that help imported from any one of these places is not at all stable.

To lessen the expensive labor turnover caused by outside help, we adopted a scheme, several years ago, which has been in successful operation since. Our method is to train our own help, as far as possible, from young operators with no previous hosiery experience. We are running a school for toppers, joiners and seamers which will accommodate, at capacity, about sixteen girls. These girls are paid a set day rate while learning. They are given close attention by an experienced teacher for from one to three months, and are then "graduated" to the regular topping, joining and seaming rooms. They are qualified for piece work within two to three months' additional time. Similarly, the learners for mending are taught by another experienced teacher, and the learners for inspecting are taken care of by the forelady of that department. Girls for the school are carefully chosen, not for experience, but for brightness, good eyes, and are selected from applicants between the ages of fifteen and one-half and eighteen years. We have found by experience that girls older than eighteen or twenty, particularly if they have done other work previously, are very liable to become discouraged and leave in the middle of the training period.

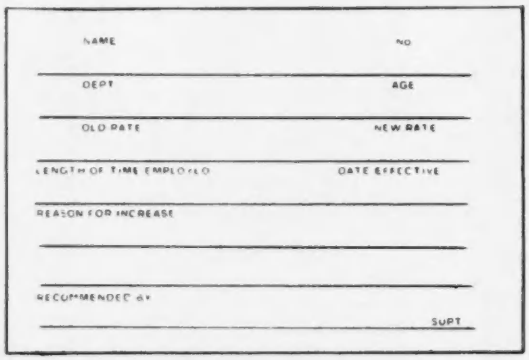

NAME NO
DEPT AGE
OLD RATE NEW RATE
LENGTH OF TIME EMPLOYED DATE EFFECTIVE
REASON FOR INCREASE
RECOMMENDED BY
SUPT

Fig. 1. Pay Authority or Re-rate.

Our method of training knitters is an apprentice system. Helpers are required to serve three or four years before being assigned a machine. These helpers are paid half by the company and half by the knitter for whom they work. Their pay to start is ten dollars per week with one dollar raise every six months until fifteen dollars is reached. Formerly the knitter hired his helper, paid all his wages, and could fire or change helpers at any time. Now the company chooses the helper, hires him and assigns him to a particular knitter. The latter method is more fair to the helpers and gives better results for all concerned, we think.

Boarders' helpers are trained and paid similarly to knitters' helpers except that the time of apprenticeship is a matter of months rather than years.

From the lengths of time while learning, and the amount of production made, we have worked out the following values of actual dollars that a trained operator in the different departments is worth to us, which are as follows:

Joiner	$250.00
Seamer	250.00
Topper	250.00
Mender	250.00
Boarder	100.00
Knitter	1,000.00

These are our figures as closely as we can determine them. I would be glad to have other mills send their figures to "Knitting Kinks."

LEAVING OF EMPLOYEE

Dept.

Employee's No.

Name in Full

Gave Notice

Date Left

Reason

Would Hire Again

Remarks

Foreman

Please fill in this Card as soon as employee leaves, or gives notice of leaving and forward to Employment Supervisor

Fig. 3. Form Showing Cause of Turnover.

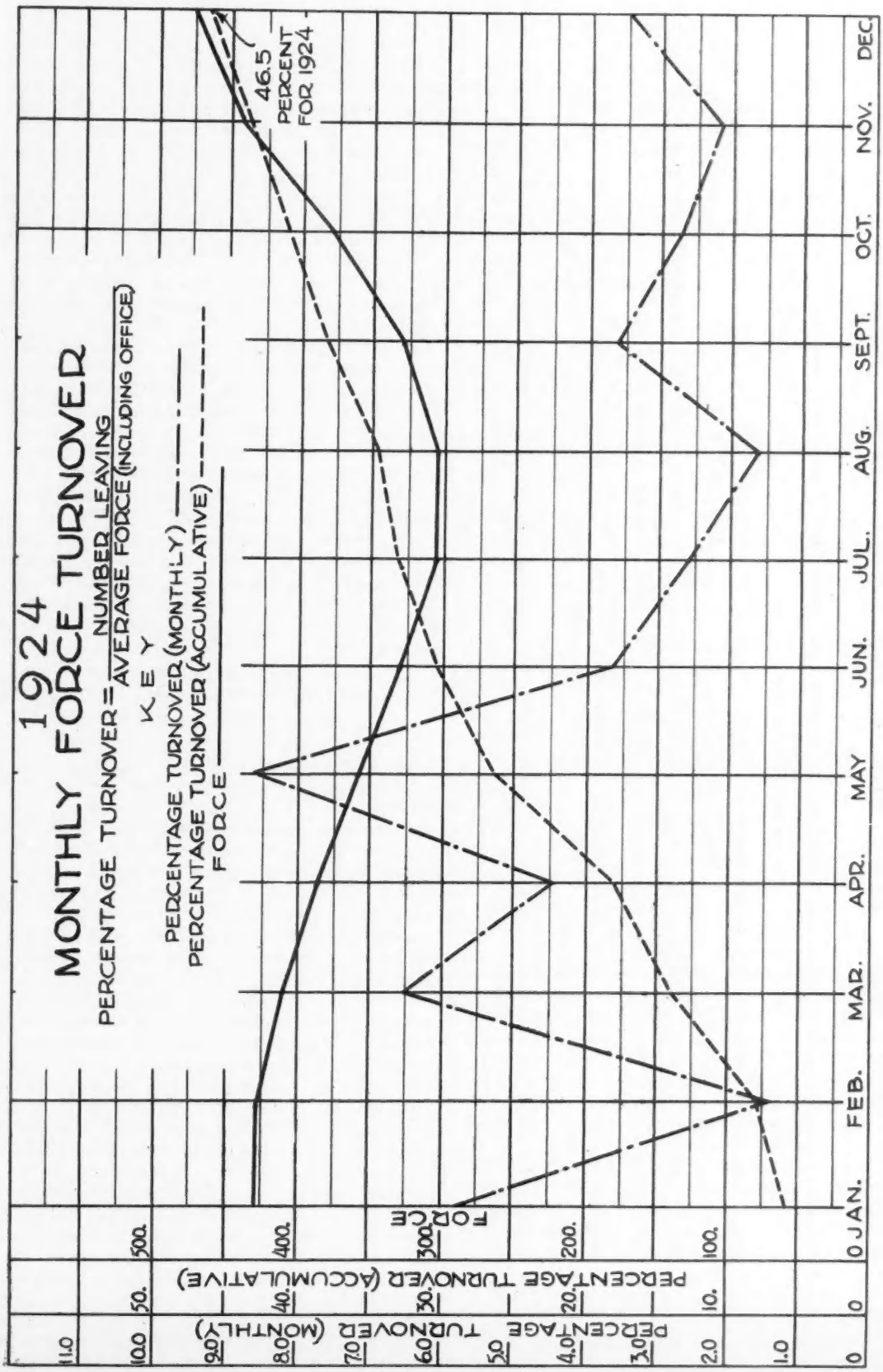


Fig. 4. A Charted Turnover Record.

Our employment department interviews all applicants, hires help to meet the requirements of the various departments, and supervises the learners' school. For the information of the management, monthly reports, of employees by name, hired and left in each department, are compiled. Also, labor turnover charts are plotted to date each month. These various charts show the average force, the monthly per cent of turnover, and the accumulative turnover percentage.

For the interest of the readers of "Knitting Kinks," I am sending herewith three of the forms used in our employment department. The form shown in Figure 1 is 3¾ x2½ inches, and is called the pay authority or re-rate. It originates in the employment department and is approved by the superintendent and then serves as an authorization for the payroll department.

Another regular form we use is shown as Figure 2, in which both sides are used. The side shown at the top is the "Application" side, and the lower illustration is the "Employee Record" which is the opposite side of the card. This card is practically self-explanatory. It gives a complete record of the employee on the "Application" side, so far as previous experience, etc., is concerned, and the "Employee Record" side is kept up-to-date with changes in residence, position, salary, etc., during the employment of the worker at the mill, and should he or she leave our employ, this is recorded, with the reasons therefor, and the card is kept for use in case of re-application, etc.

A very interesting record which we always keep and which proves of help and benefit to us is the record of our labor turnover. The chart which I am also sending with this letter shows the actual figures of our force and turnover for the year 1924. This chart, as will be noted, shows the average force in numbers of workers, the monthly percentage of turnover, and the percentage of turnover accumulative each month. The percentage of turnover is determined by dividing the number leaving our employ, by the average force including office workers.

Interesting deductions can doubtless be made from this chart by other executives. It will be noted that our average labor turnover for the year 1924 was 46.5 per cent, figured in the manner indicated. The number of workers employed, shown by the line marked "Force," remained comparatively constant, with a slump in the late summer months. The accumulative percentage of labor turnover naturally increased each month. The monthly percentage of turnover, however, shows some interesting fluctuations throughout the year, running from about seven per cent in February up as high as 42.5 per cent in May, dropping to 17.5 per cent in June, etc., etc.

Reports of this kind are interesting to your readers, perhaps, for comparisons with their own records, in cases where such figures and charts are plotted. I am glad to let you publish the chart with that thought in mind. In this connection, I should be very much interested to see the figures from other plants, so that I may see how we compare with them. Your practice of publishing these figures without using the mill name does not detract from their interest; in fact, it really makes us feel more open in handing out information of this kind.

CONTRIBUTOR No. 2722.

"Knitting Kinks" is your department. Use it!

A Kink on Drop Stitch Work.

EDITOR COTTON:

Responding to your invitation I am going to give the readers of "Knitting Kinks" a couple of ideas that may be worth something to somebody. I should be glad to hear the comments of others upon them.

Not so very long ago we changed from plain work to a drop-stitch half-hose on Banner machines. As you know, on this machine, with plain work, when the knitter puts the top on, they usually turn the sinker head all the way around to get the stitches under the sinkers. Well, when we began on the drop-stitch number, I didn't think anything about that, until we began to have too many stitches cut out. I went in to look things over, and found out, for the sixty-fifth time this year, that we "live and learn."

On this drop-stitch work, you can't turn the head all the way around because if you do, the drop stitch cam, when it passes the carrier ring post, will cut the stitch loose from the needle. I found by having the knitter put the transfer ring on and start the machine without turning it would serve just as well, and the stitches would go under the sinkers just the same of their own accord.

Somebody might have trouble, some time, as we did, in properly regulating the double sole. Trouble is sometimes caused by the double sole finger being drawn too tight by the drum lever wire, which will not allow the double sole finger to drop in at the right time, and cause the double sole to be uneven. The remedy for this is obvious. This is another thing that seems simple, yet might cause somebody plenty of worry. S. D. (GA.)

Why Long Butt Needles Sometimes Make Drop Stitches When Transferring.

EDITOR COTTON:

I have the following to offer in reply to "J. F. D. (Ga.)":

There are many things which will cause drop stitches on the long butt needle side when transferring off of the heel and toe, and I will try to give a clear explanation of each.

If the upper center cam does not draw the needles down soon enough in the right corner of the throat plate, the latches will fly closed, at this point, due to the jerking motion of the machine when changing from reciprocating to plain fabric. The under side of the center cam may be worn, have a nick, or perhaps may be ground too steep. I suggest putting on a new cam that will draw the needles down sooner in the corner of the throat plate.

When a K machine is in use for a length of time the front edge of the throat plate becomes worn. This brings the thread too far away from the hooks of the cylinder needles at the feeding point. Due to the shifting of the machine from reciprocating to plain fabric, the thread may miss a hook or two, causing drop stitches. If the throat plate is worn I would say put on a new one which fits up close to the hooks of the cylinder needles. The machine manufacturers now produce adjustable throat plates for K machines which can be set ahead or back as wanted.

Another common cause of this trouble is when the machine transfers from the heel into the foot, bringing the splicing dividing cam into action. If the long butts are drawn down too low, the thread will skip a hook or two.

This is due to the fact of the jerking motion the needles receive when just transferring off of the heel into the foot. This applies of course only when coming off of the heel. When coming off of the toe the splicing dividing cam is supposed to be out of action. If the set-screw adjustment on the dividing cam is out of adjustment and brings the long butts out of action, the same thing will occur as when on the heel.

The purpose of a gap closer is to close the gap in the throat plate while the machine is making the heel and toe. If the gap is not completely closed, the latch will fly closed at this point, causing drop stitches, when transferring off. This adjustment is secured on the adjustable plate on the rod that controls the gap closer.

Model K machines, as they come from the factory, have three spring bands to hold the cylinder needles in the slots of the cylinder. I have found it of advantage to add one more, making four instead of three. This puts more friction on the cylinder needles, preventing them from working too freely, which is a frequent cause of these drop stitches.

Model K machines, for best results, should have forward hook cylinder needles. If straight hooks are used, this may be the cause of the trouble.

If the left-hand stitch cam is worn, has a nick, or has been ground on the going down side of the cam, the slope of the stitch cam will be too steep, causing the cylinder needles to bound down, missing some of the hooks of the cylinder needles. I suggest changing the stitch cam.

RYMI.

Stains on Sulphur Dyed Goods.

EDITOR COTTON:

I recently received a request from a friend in the finishing game who said: "We have a standing bath of our sulphur black, and, especially if it stands for any length of time, say overnight or over the week-end, or sometimes longer, it almost always shows on the surface a scum that is of a gray color. It interferes quite a lot with our work and sadly hampers our dyeing efficieney. What do you suggest?"

Thinking some of your readers might have the same difficulty, I am sending you for their information, the reply that I made to him:

"If, as you say, a bath of sulphur black turns gray upon the top or shows up on standing a grey scum on the surface it is due almost always to the presence of small ground or finely divided sulphur. In some cases which have come to my knowledge, this scum has attached itself to the goods as they have passed through the machine and as they cannot be removed, especially on fine goods or yarns, or at least so the dyer thinks, they look quite unsightly and spoil the goods.

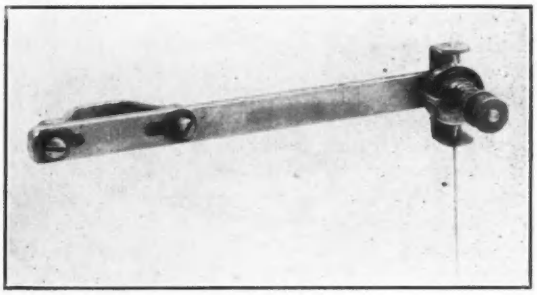
"Now if the goods show this again, boil them in sodium sulphide, they can easily be brought right in this manner, though it may be at the expense of the color somewhat. I think not, however, unless it is overdone. This scum may be prevented from forming on the surface of the dyebath by adding five per cent, or more if necessary, sodium sulphide crystals to the bath at the same time as the color. The sodium sulphide dissolves the sulphur, and in this way it is sure to remove the scum, and at the same time prevents it from forming, and thus obviates its becoming attached to the goods being dyed."

W. B. (MAINE)

Tensions for Artificial Silk Plaiting.

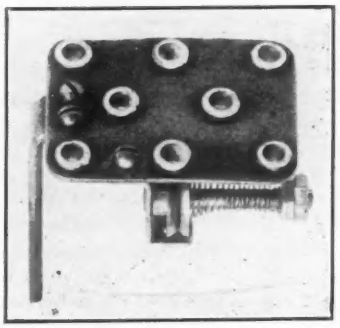
EDITOR COTTON:

In further reference to the discussion you have had on thread tensions for plaiting, I am sending you photographs of two that I use. The long arm shown should be set two



inches above the cone to take care of the ballooning, and clear the knots, especially on artificial silk. The other photograph will be recognized by knitters as being of a regular Banner thread guide plate, with my tension shown in place where it should be—that is, at the nearest point possible to the needles.

These tensions are good on artificial and pure silk plaiting, and on mercerized they help to make an even stitch and aid in cutting and clamping.



I trust these will be of interest. They have nothing startlingly new about them, but I pass them on for what good they may do.

B. H. (MASS.)

A carefully prepared and attractive booklet has been issued by Tennessee Electric Power Company, Chattanooga, Tenn., for better acquainting those interested with the company and its operations, its policies and methods. This company, operating the extensive hydro-electric power system in Tennessee, employs more than 2,000 people and serves a territory with a population of 1,000,000. The booklet outlines the organization and various hydro-electric and reserve steam electric plants; the territories and communities served are listed and described. All of the subjects are attractively illustrated with a large number of excellent photographs.

The Yarn Market

The Philadelphia cotton yarn market has showed no noticeable change during the past month as it is reported here, so far as general conditions are concerned. Somewhat of a continued price decline, in certain sections of the list, with an extension of apathetic interest from the buyer's standpoint, and a renewed determination on the part of spinners generally to hold out for replacement values in the disposal of their goods, has featured the market.

There have been several sidelights, however, which may be of service by way of varying this month's report from the usual tone prevailing ordinarily here lately, as indicated in the preceding paragraph.

Toward the latter end of May, a healthy spurt in raw cotton prices served to allay the sinking tendency of yarns, and dealers and manufacturers of yarns grasped it as a means to work yarn prices back up. The result was a gain in both knitting and weaving yarns. Hope was indeed sanguine at this time. It was believed that users' stocks were unusually low. Most of them, it was felt, had been away from the market long enough, and they might be expected to return. Most of the factors were agreed as to the timeliness of a rise in rates to provoke interest. All in all, the market seemed back on its toes again for a seventh inning rally, or something like that.

There were a few days that seemed to justify such an anticipation, but after a brief flurry, things went back to what has been "normal" for the past several months, and any waves of feverish buying activity that might have been started, receded forthwith. Some men felt that those drawn in to the mart were in need of yarn for more or less immediate requirements, and those pessimistically inclined drew the conclusion that users are carrying more in stock than had been generally calculated.

For the rest of the month as it is considered here, the market lapsed back into comparative dullness. One reason to which it was attributed, among others, was that yarn was available for business offered at prices providing concessions under the increased rates resulting from the rally.

During the month, the determination of spinners to settle down to operation on orders only took the form of materialized curtailment and plans for other reductions of operating hours during the coming Summer. The market looked at this as a hopeful sign, some declaring that this action should have been taken sooner. Impetus was given the movement by the government report the first of June indicating a larger production possibility. The prospect of lower raw material coupled with a recognition of the danger of over-production in the face of a dull market influenced the decision to some extent.

Another point discussed during this period is that insofar as the market here itself is concerned, conditions have practically adjusted themselves properly, and have been settled upon a healthy foundation. Inactivity in buying is not contributed to a lack of sales effort on the part of the market, but rather to an inability of consumers to take goods. In this connection, it is pointed out, such assistance as is necessary in the market at this time must not be expected from within the machinery of the market itself, but must of necessity originate elsewhere; the consuming end, as an example, must adjust and adapt itself to the changed demands and requirements of their own customers, in the way of new styles and patterns, etc. The yarn end of the industry, it is felt, is in a very good position to fall in line with such changes, but the log-jam comes at the yarn consuming point. This is only one angle of the situation. Those catering to the public trade must furnish what the public wants to buy, or—and this is especially true in textiles—the public finds it easier to turn to other than the usual sources of supply.

Philadelphia market prices on June 16 follow:

Single Skeins.

4s to 8s	35	10s	35½
12s	36	14s	36½
16s	37	20s	37½
24s	40½	26s	41
30s	42		

Single Warps.

8s	35½	10s	36
12s	36½	14s	37
16s	37½	20s	38
26s	42	30s	43
40s	54		

Frame Spun Carded Yarn on Cones.

8s	36	10s	36
12s	36½	14s	37
16s	37½	18s	37½
20s	38½	22s	39
24s	39½	26s	40½
30s	43½	40s	53
30s double carded			45
30s tying-in			42 @42½

Two-Ply Skeins.

8s	36	10s	36½
12s	37	14s	37½ @38
16s	37½ @38	20s	38½ @39
24s	41½ @42	26s	42½ @43
30s	43½ @44	40s	53

Two-Ply Warps.

8s	36½	10s	37
12s	37½	14s	38
16s	38½ @39	20s	39 @40
24s	42	26s	43
30s	44½ @45	40s	54½

Carpet and Upholstery Yarn in Skeins.

8s and 9s 3-4 slack	37½
8 3-4 hard white warp twist	35½ @36
8s and 9s 3-4 tinged tube	34 @34½
8s 3-4 hard twist waste	32½ @33

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	50	20s	53
24s	58	30s	62
40s	70	50s	78
60s	85	70s	93
80s	1.07@1.10		

Single Combed Peeler Yarn on Cones.

18s	48	24s	53
30s	61	36s	65
38s	66	40s	68

Mule Spun Carded Yarn on Cones.

10s	42	12s	43
14s	44	16s	45
18s	46	20s	48
24s	49	26s	50
30s	51	40s	59

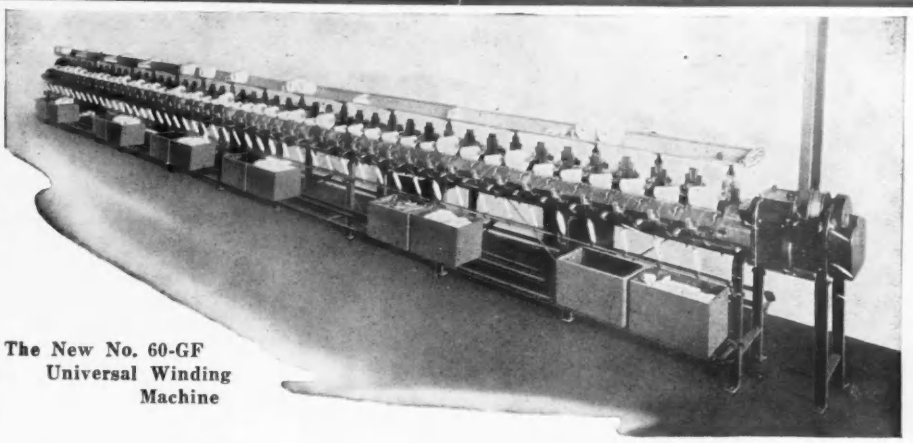
Mule Spun Combed Peeler Yarn on Cones.

10s	50	12s	51
14s	52	16s	52
18s	54	20s	55
22s	56	26s	60
28s	61	30s	62
36s	64	38s	67
40s	72		

A new book on silent chain drives for the textile industry, issued by the Link-Belt Company, consists largely in text of operating cost statements from textile mill superintendents, summarized in such manner as to point out the advantage of the silent chain drive in the mill. Photograph reproduction of the successful applications to practically every type of machine in the textile industry illuminates the book. The foreword of the book contains a statement by a prominent textile mill engineer.

A handy psychrometric scale for ascertaining relative humidity and cotton and wool regain, with wet and dry bulb temperatures given, is being sent out by the American Moistening Company, 251 Causeway St., Boston, Mass.

LEESONA
REG. U. S. PAT. OFF.



The New No. 60-GF Universal Winding Machine

The New No. 60-GF Universal Cone and Tube Winder.

DESIGNED to combine high speed, simplicity of structure, durability, ease of handling and economy of operation, the new No. 60-GF Universal Cone to Tube Winder is our latest contribution in quality production and cost reduction in winding cones and tubes. Less than 3 HP. is required to operate a machine of 98 spindles at a yarn speed of from 450 to 600 yards per minute.

In the No. 60-GF machine, principles of construction are embodied, which compel the cone or tube to maintain its uniformity and produce packages that are unequalled by the product of any friction drive machine previously constructed. These principles of operation are protected by letters patent, and are fundamental in securing uniformity and perfection of product.

"Uniform" Products of the No. 60-GF Universal Winding Machine.

"Uniform" Hosiery Cone 6″ traverse, maximum diameter 8″, net weight of yarn up to 3 pounds.

"Uniform" tube for shipping purposes, 6″ traverse, maximum diameter 8″, net weight of yarn up to 4½ pounds.

"Uniform" warping cone 6″ traverse, maximum diameter 8″, net weight of yarn up to 4½ pounds.

"Uniform" tube for warping 6″ traverse, maximum diameter 8″, net weight of yarn up to 4½ pounds.

UNIVERSAL WINDING COMPANY

Providence, New York, Chicago. BOSTON Philadelphia, Charlotte, Utica.

Montreal and Hamilton, Canada

DEPOTS AND OFFICES AT MANCHESTER AND PARIS

Uniform Needles —
Stop the leak of profits
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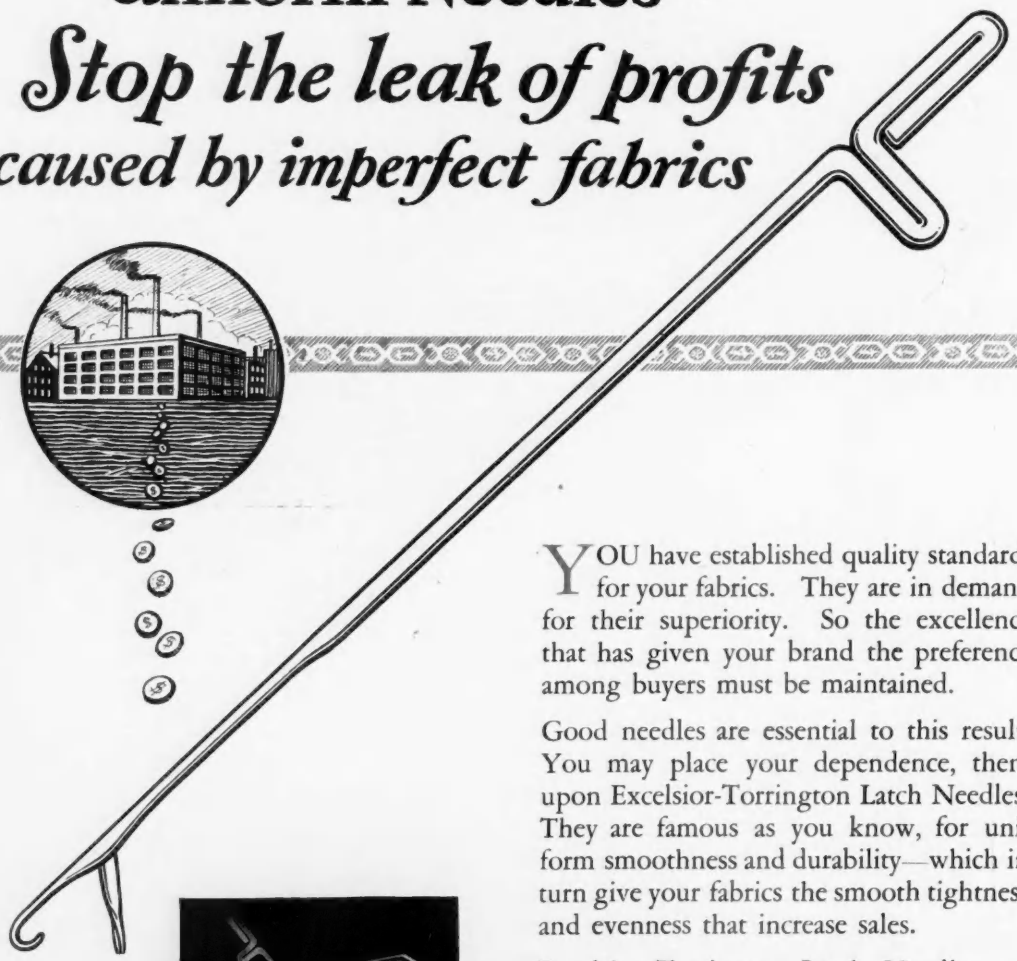

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The Knit Goods Market

A somewhat erratic knit goods primary market was noted by the various trades last month, the second half of the year opening less auspiciously than the first half. There had been some little confusion over cancellations of orders in several lines, but these were insignificant as to both the number and the quantities of merchandise involved. The June 2nd cotton crop report was made a pretext by some operators for proceeding more cautiously, while the upward tendency in wool stimulated buying of worsted yarns for the sweater trade. Light weight underwear was comparatively stagnant in the primary market until abnormal temperatures were recorded, when there was a rush for goods and the market was given new life.

Some important factors in the hosiery trade believe that June was the turning point and that before the end of July buying of the more desirable popular priced lines will be resumed in a general way. One representative operator says he believes the third quarter will be as brisk in hosiery as was the first, when mills generally were under more severe pressure for deliveries than had been the case for a long while.

It developes that there are no worthwhile stocks of ordinarily quick moving staples in the warehouses of any of the larger jobbers, with perhaps one or two exceptions. Details against orders placed three or four months ago were received by mills last month, specifying shipment within ten days, and in some instances adding to the original order. It was not infrequent that as many as five to eight cases of hosiery were shipped from the East to Chicago and St. Louis by express. Shipment within ten days was made imperative by some concerns that found they had waited too long. They had underestimated retailer demand and the retailer body had placed too low an appraisal on consumer needs.

Transactions of the character referred to gave the market the appearance of briskness at times when the situation was the reverse, in that jobbers were placing little forward business, except for full-fashioned silk lines, of which a few mills are sold up to the end of the year and numbers accepting no new business for deliveries this side of October.

There cropped out on occasion encouragement for the belief that some of the more substantial dry goods houses distributing hosiery would depart from the hand-to-mouth policy, as in the last few months there were painful reminders that while there may be an abundance of hosiery as a commodity there can be a scarcity of certain lines. Commenting on the disposition of retailers to buy for their needs from week to week and the tendency of jobbers to restrict their commitments to requirements for a month or two, manufacturers are being heard on the subject of the wide gap between the prices jobbers pay to mills and those which retailers exact from consumers. Ordinarily the retailer price is 100 per cent above that which the mill receives from the jobber. This perhaps might not be wholly out of line, it is held, if jobber and retailer carried stocks instead of passing the responsibility to mills.

"If we must carry stock for the jobber, which means for the retailer," said the executive of a Philadelphia hosiery mill, "we ought to be able to get at least $5.00 a dozen for silk half hose that the retailers are selling at 75 cents a pair. Jobbers are insistent for a $4.50 price, and as we refused to cheapen our line of split foot silk socks to meet the ideas of the jobber, we discontinued making it. Whether it is high cost of distribution or excessive profits after the goods leave the mill, it is apparent that a great deal of retail business is drifting to catalog houses and chain stores, and as well to establishments selling to the consumer through door-to-door canvassers."

This manufacturer, commenting on the shortcomings of merchants in the matter of buying for stock, said they seem to overlook the fact that the mill must contract well in advance for silk and yarn and take a gamble on a rise or fall in the raw material markets. A merchant, he went on, assumes no risk whatever, and usually if there be any radical decline in raw materials after the average merchant has placed his order for finished goods, that order is likely to either be cancelled or become the subject of a controversy. This mill is making up no goods for stock, and it was stated by an executive that when orders on the books are completed there is seldom as much as a half case of hosiery to be put away until someone calls for it.

Most of the cancellations received by hosiery manufacturers and commission merchants involved novelties, deliveries of which may have become a few days past due. Shipments very often were late, as orders were placed late, and most manufacturers operated only on orders. The only accumulations of pattern hosiery are of goods of now ancient design. One of the larger New York operators in seconds is understood to have a considerable stock of women's fancies and knee length stockings. While some few lines in stripes and plaids, etc., moved fairly well for a time, women's novelty hosiery has proved quite disappointing. Short skirts call for plain, snappy colors, to begin with, and some of the patterns were of a design calculated to produce an awkward effect. For example, women said, the wide horizontal stripes gave the ankle the appearance of undue circumference. It is the opinion of manufacturers that novelties along conservative lines will be more popular in silk-and-wool hosiery than in the light fabric suited to the current season.

Wool hose is one of the lines in which there is a fair amount of fall business. Some mills are well supplied with orders and one or two that might be mentioned are sold up to the end of the year. A mill which specializes in patterns has had a particularly big season in boys' golf hose. Some of the business in golf stockings has passed to sweater manufacturers who supply matched sets—that is, cap, jersey coat, knickers and stockings. Thus the sweater manufacturer has further invaded the hosiery field, after having complained that his domain had been encroached upon by some of the underwear manufacturers when they found their market over-supplied.

"Is the full-fashioned hosiery industry being over-expanded?" is a question that often is discussed. There has been a phenominal demand for the aristocrats among stockings, but a part of this, it is believed, was the result of brisk buying for export to British ports where it was announced a stiff import duty on American hosiery would be imposed beginning with July. That demand no longer exists. Meanwhile there have been very large additions to

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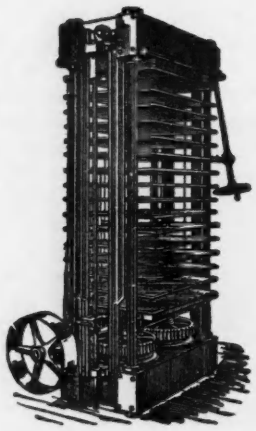

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the full-fashioned equipment. Thus far, however, production has been short of immediate requirements. With the great gains that have been scored by full-fashioned over seamless in the domestic market, it is believed in some quarters, that the flat knitted stocking will make further inroads and that there will be no excess production this year or the next.

Admitting for the sake of argument that the term full-fashioned carries an appeal stronger than the difference between it and its seamless competitor, the fact is, said a leading hosieryman, that full-fashioned will continue to crowd the circular knit, and it is a question of only a few years, I predict, "when silk and artificial silk in combination will be used by pretty nearly as many fullfashioned manufacturers as now are using Japanese silk exclusively. In other words, I look for a full-fashioned stocking to sell at a dollar a pair."

Artificial silk has been so improved as to be better adapted to hosiery purposes, and as production of the fiber increases, the cost, it may be assumed, will decrease. So, unless there shall be found new uses for Japan silk that fiber may eventually drop to a lower price level in competition with rayon.

Judging from the present demand for silk hosiery, it would seem that the time when it might be advantageous to expand production of rayon goods is distant. Last month there was offered a contract by a direct-to-consumer establishment for 150,000 dozen pairs of staple silk half hose, for monthly deliveries of 50,000 dozens. The business was offered to each of a half dozen or more manufacturers, neither of whom could at the time accept orders for more than 25,000 dozen a month, deliveries to start in July. There was a well authenticated report that another direct-to-consumer establishment, which is buying full-fashioned silk hosiery for ladies, was looking around for an unencumbered mill, with a view to taking it over. The same concern, said to be the Smartset Silk Hosiery Co., Newark, N. J., some time ago acquired control of a mill making seamless lines.

A departure from the house-to-house method usually employed is announced by the Klearspun Hosiery Co., New York, which sells a given number of pairs of ladies' silk for $5.00, the purchaser receiving three coupons. The purchaser is assumed to sell these coupons among his or her friends, the Klearspun Co. accepting a coupon in lieu of one dollar, thus receiving $4.00 for the hosiery when purchased by a person presenting a coupon. How the scheme is working out has not been disclosed, but it is stated it is promoting sales of hosiery.

Whether Philadelphia manufacturers were profiting by the business coming from direct sellers or were unusually busy with orders from jobbers, it was noted that last month there was a somewhat unusual demand for help. Some manufacturers were offering night work and a few were willing to employ welters and loopers part-time or full-time. One mill was offering work to menders, the work to be done in their homes. Of twenty-three Philadelphia mills displaying the "help wanted" device at one time during June, seven manufacture full-fashioned hosiery.

Speaking of silk hosiery in the dollar-a-pair class, it was the opinion of a manufacturer producing such goods that any material advance in the raw silk market from the June peak would make a 10-strand 20-inch boot 260-needle

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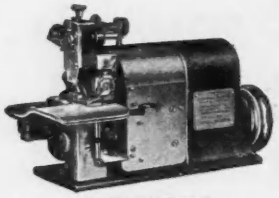

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stocking an impossibility as a dollar seller. Full-fashioned manufacturers, it was thought, are operating on a somewhat wider margin of profit than those in the seamless class, and it was a question whether they might not be able to absorb a reasonable increase, as it is assumed there is broader opportunity for reducing knitting costs. A manufacturer of both Japan silk and rayon goods for ladies already feels inclined to discontinue making the former, stating that with high grade rayon stockings there is a more satisfactory market for his class of goods.

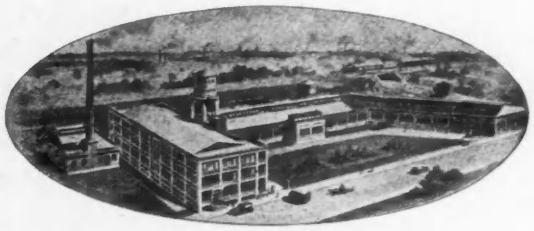
The steady stiffening of the raw silk market last month stimulated buying by hosiery mills, not many of which, it is stated, acquired silk when it was selling on the basis of $6.40 a pound for double extra cracks, especially in demand from mills making chiffon hosiery.

While there has been an easing off in the demand for chiffons in the primary market, there is no abatement of interest in the very sheer, of which there has been considerable buying for fall deliveries, indicating that jobbers have visions of a brisk chiffon winter. This view is supported by the placing of very early orders for underhose. One of the larger catalog houses which heretofore did not distribute underhose, recently placed a trial order, indicating at the time that if the expected demand developed, a very large contract would be placed. The stocking has a light weight worsted leg on a fine count mercerized foot, and sells at a dollar a pair.

Having in mind the long continued policy of buying for only immediate distribution, a policy to which numbers of jobbers are presistently adhering and to which they will adhere in an over-supplied market, a manufacturer was asked how he accounted for the eagerness of some of the large distributors to contract for full-fashioned silk hosiery for distant deliveries. "Distributors operated so long on the hand-to-mouth basis that they believed they always could get the goods whenever wanted and for such deliveries as might be specified," he said. "Some months ago, he continued, "they awoke to the fact that there was a real scarcity of spot delivery hosiery, and there were good reasons for believing that the shortage would be as acute later in the year as during the earlier months. Then, when everybody was wanting spot goods, wise jobbers began placing contracts, and it transpired that already there is some disappointment over prospective supplies for the last quarter of the year. I would say that in nearly all silk and high grade rayon lines the market is in favor of the seller, and will continue so for some time," this manufacturer added.

When manufacturers of juvenile hosiery opened their lines last month for the 1926 season it was the opinion of most of them that it might have been wiser to defer the formality until after the July holiday. It was doubted whether, in the then unsettled condition of some of the raw material and finished goods markets, buyers would do other than look over the samples. But the lines of one or two mills were understood to have been shown in a quiet way to a few of the more important jobbing houses, and obviously all manufacturers were eager to get in at the start, and were prepared to show samples and name prices the moment it developed that any competitor had come on the market. At this writing it is not in evidence that there was any volume contracting.

Infants' socks for next year will be a finer gauge and rayon will be more extensively employed in types to sell at 50 cents, and up, per pair. Socks knitted with a needle



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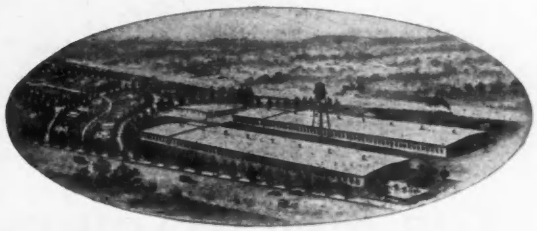

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out were looked on as a winner for next season, and much confidence was expressed as to the coming popularity of some of the new fancy tops. A Philadelphia manufacturer has produced a top combining the derby rib and fancy stitch, in 15 colors. Another line of tops, presenting the appearance of heaviness in color and construction, is suggestive of the Romanesque. These patterns come from a mill whose lines proved a tremendous success for the current season—a mill which, an executive states, underproduced by more than 50,000 dozen pairs and which had not completed current season deliveries to the middle of last month.

Plain cotton hose necessarily has been quiet, although suffering no price disturbance. A rather interesting development was a buying spurt in which women's combed hosiery was the chief objective. Manufacturers said they were unable to account for it except on the ground that a good combed stocking represents about the peak value in cotton lines going over the counter at 25 cents a pair. Possibly a better explanation was the low prices at which the goods were available. After booking orders for about 1,000 cases, a well known mill discontinued the line for the present, stating there was "no money in it." A North Carolina mill reported through the New York office last month that it was sold up to near the end of July.

Mercerized lines for men, women and children saw little activity, juveniles plain mercerized being reported even slower than fine gauge combed. The fact that not much is being heard of low end cotton and mercerized hosiery possibly is due to a centering of interest in silk and juvenile fancies. Probably the worst that can be said of the hosiery market is that it is spotty, but it would appear that the bright spots outnumber the dark ones. It will not be overlooked that a considerable part of last month's activity could be ascribed to the fact that numbers of mills were completing orders for export for heading off the import duty on certain lines of American hosiery landed at the more important British ports, the tariff becoming effective July 1st. The effect on the domestic market was similar to that which was experienced more than a year ago when goods were being rushed to South American ports to reach destination before a new tariff went into effect. Subsequently there was a slowing down in exports to some of the Latin-American markets, and it is to be expected shipments for British account will fall off—very heavily from those for May and June.

Underwear.

Primary market trading in light weight underwear necessarily received a boost with a week of sweltering under excessively high temperatures. The first week of June, according to reports from jobbers, brought dealers to market in swarms. It had been the complaint of distributors that retailers up to the end of May had taken in very little seasonal underwear, and jobbers found themselves with considerable stock. As had been predicted, retailers were caught short of goods, and jobber stocks soon were depleted, with the result there was a rush on mills, some of which had nothing in the way of either balbriggan or ribbed goods for spot delivery.

Some of the desirable lines of women's light weight cotton underwear were even scarcer than men's knitted garments. Manufacturers, besieged with orders for at-once goods, made it plain they had nothing in stock and that they had adopted the policy of operating their plants only

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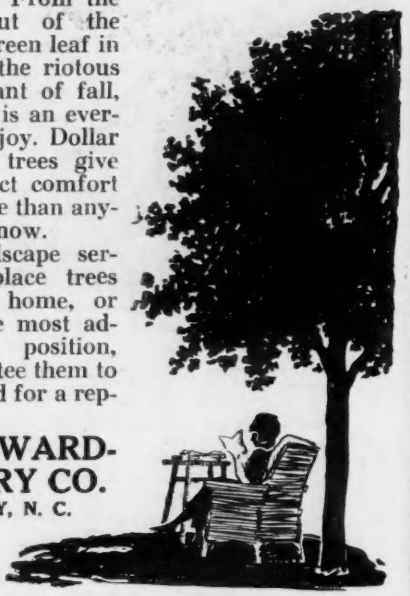

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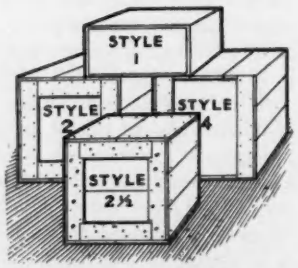

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on orders. Even under pressure for goods, numbers of retailers were holding their orders down during the heated term to requirements for but several weeks, stating it was their intention to buy only as they saw need, that they felt there was a possibility of lower prices. It should have been apparent to the most obtuse retailer that in a tight market such as existed last month it was the height of folly to depend upon mills and jobbers to have immediate delivery goods.

Retailers, in the opinion of several leading jobbers, are trying to impose impossible conditions on mills. Manufacturers cannot operate economically and dealers cannot buy goods advantageously when buying for a season has been postponed until the season is at hand. As is pointed out, it were better that mills have long continued steady business, even on a certain basis, than that they be jammed with orders for a time and then be left with nothing to do but speculate on the future.

There are occasions when retail shops can supply a valid reason for restricting their commitments to requirements of a short period, a point that was illustrated last month in nainsook athletic underwear. While some jobbers were clamoring for deliveries of past due goods, and although advances of 15 to 25 cents a dozen had been made by two manufacturers, such garments were being exploited in some stores at a material reduction for special sale, one line, ordinarily selling at a dollar a suit, being priced 79 cents. Thus it appeared that while immediate delivery nainsooks were scarce, some shops were dumping what may have appeared to be stocks that threatened to become cumbersome. This may have been due to the opinion knit underwear was destined this season to make further inroads on the woven cut-and sewed. The opposite seems to be the case.

With interest centered last month in light weights, the market for winter underwear appeared to be neglected, in fact, it has not displayed much life for some time, but is expected to show better this month, as retailers are realizing on their summer goods, and obviously will be in a better mood for giving jobbers some encouragement.

It is estimated by the underwear buyer for one of the larger wholesale establishments in the west that the average jobber has contracted for but 50 per cent of his requirements. "I would say," he stated, "there is hardly a jobber who has bought as much as 60 per cent." It is pointed out that there is manifest a disposition to wait for the August cotton crop report. Not until the August condition showing is made public, it was thought, will jobbers feel 75 per cent confident. But, it was suggested, "suppose the distributor body wait another month or two to buy the remainder of the fall goods, it is easy to imagine what will be the result. If I do not miss my guess, most manufacturers will have little underwear in stock and, even though cotton were to decline, demand upon them would be so great that they should be able to maintain present price lists. The longer we jobbers wait the worse may be the situation for us. It would seem to me that those who contract now will have a slight advantage over those who wait until the end of summer."

Sweaters have been lagging, and even in cricket lines and several others almost as popular, there was no marked briskness last month. For a time jobbers were deferring commitments in the belief worsted yarn prices would decline. There were manufacturers who felt the same way, and necessarily were not actively soliciting business except for

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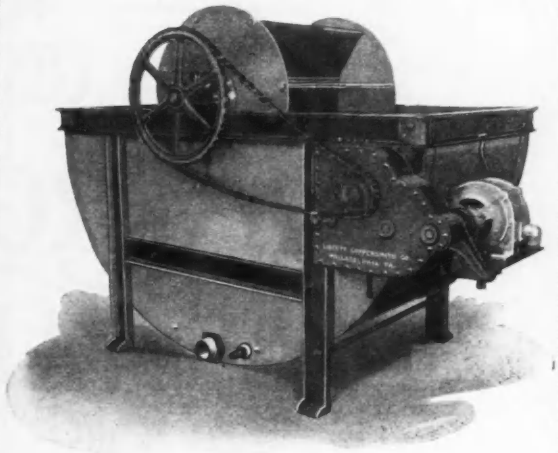

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gilt edge account. With mill and merchant in accord on this matter, business halted. Last month, when wool was 30 to 35 per cent lower than in December, and worsted yarns were believed to have gone to the bottom, there was considerable buying for the sweater and knitted underwear trades generally. It was estimated that in Philadelphia alone contracts aggregating more than a half million pounds were placed during the first week in June. This did not stimulate yarn prices, but checked the decline, and it was believed there was a more promising future for sweaters.

Some of the yarn contracts were placed by manufacturers of bathing suits, a number of whom will put their goods on sale during July for the 1926 season. Business in bathing suits had been disappointing for some months, but as stocks were pretty well absorbed in June, and there are indications of a bumper season at the northern shore resorts it received considerable impetus toward the end of the month, and the outlook for considerable buying at the July opening was reported very promising.

Among the Knitting Mills.

Employees of the Alden Mills, Meridian, Miss., have been made the recipients of group insurance benefits under a comprehensive program established by their employer. Aproximately 300 mill workers are covered for nearly $200,000 life insurance. Arranged on a cooperative basis, with the employees sharing with the mill in the payment of premiums, the insurance was made available to the workers at a low cost. The plan was underwritten by the Metropolitan Life Insurance Company and includes as supplementary features certain service advantages. Among these are a free visiting nurse service and the distribution of booklets on health subjects and sanitation. The actual insurance contract contains a disability clause by which full life insurance will be paid any employee totally and permanently incapacitated before the age of 60 years. The payment of premiums being waived during the disability period. The schedule provides individual life insurance coverage ranging from $500 to $1,000, while sick benefits, under a health and accident policy, range from $5 to $10 a week for 26 consecutive weeks.

Full-fashioned hosiery machinery will be installed in the new plant of the Davenport Hosiery Mills, Chattanooga, Tenn., to be erected on Eleventh Street in that city. The building will be two stories, 93x228 feet, of re-inforced concrete construction, designed for two additional floors. A boiler room, 22x28 feet, will be erected. Lockwood, Greene & Co., engineers, of Atlanta, Ga., and Boston, Mass., are in charge of plans.

Another full-fashioned hosiery mill for the South will be erected at Clinton, Tenn., by the Magnet Knitting Mills. The building will be two stories, 250x100 feet. J. E. Sirrine & Co., of Greenville, S. C., and Chattanooga, Tenn., are the engineers in charge.

The Lubinette Knitting Mills, of New York, will move their plant to Petersburg, Va., it is announced by D. S. Hollenga, business manager of the Petersburg Chamber of Commerce. An existing building will be utilized.

The employees of the Crescent Manufacturing Company's knitting mill at Canton, North Carolina, have been insured under the group plan with the Prudential Insurance Company of America. The 51 employees at this plant are covered by a policy for $51,000, issued on the contributory

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plan, whereby the insured pays a part of the premiums, the rest being paid by the company.

The Interwoven Mills, Inc., will erect a four-story reinforced steel and concrete plant at Martinsburg, W. Va. The building, to be 120x150 feet, will be used as a storage house for raw materials and finished goods.

Operations have begun in the new plant of the United Hosiery Mills Corporation, at Lenior City, Tenn.

The Englewood Manufacturing Company, Englewood, Tenn., is rebuilding the plant recently destroyed by fire. The main building will be a three-story, 73x64 foot, structure.

A new dyehouse has been installed by the Union Manufacturing Company, Union Point, Ga.

The Anniston Knitting Mills, Anniston, Ala., have been taken over by A. B. Pruet, president of the Anniston National Bank. The mill will operate under the managment of E. L. Field, who has for some time been president and general manager.

The Rollins Hosiery Mills, Des Moines, Iowa, have let contract for alterations to their boiler plant. Lockwood, Greene & Co., Engineers, Chicago, Ill., and Boston, Mass., are the engineers. The building will be remodeled, a 160-foot stack erected, and a 225-hp. boiler with Cokal hand stokers installed.

J. A. Evans and J. W. Gresham, of Griffin, Ga., will install a plant in the Griffin Buggy Company building for the manufacture of fleece-lined underwear for men and boys and children's sleeping garments. W. E. Bentley will be superintendent.

Lockwood, Greene & Co., Engineers, of Atlanta, Ga., and Boston, Mass., have been retained by the Dalton Hosiery Mills, Dalton, Ga., to render engineering services on an extension to the present plant.

Real Silk Hosiery Mills, Indianapolis, Ind., have awarded a contract for the construction of a two-story top addition to one of their plants. Lockwood, Greene & Co. are the engineers and architects.

Report from Clover, S. C., states that the Crossingham Knitting Mills, Germantown, Philadelphia, Pa., will move their plant to Clover. The equipment will include knitting, bleaching and dyeing equipment.

The Triple Wear Hosiery Mills, Philadelphia, having recently taken over the Lorraine Hosiery Mills, also in Philadelphia, will install additional full-fashioned equipment, bringing it up 18 machines. A part of the plant already is in operation, being idle at the time it was purchased. The Triple Wear, which makes full-fashioned silks in its original mill, also acquired the Ford Silk Dye Works, and will materially expand its field of operations. The concern is operating the old plant 20 hours a day, and is sold ahead on its featured line of full-fashioned, several points in which are covered by a patent. The establishment also manufactures baby socks, a line for which there is continuous all-year-round buying, and which never is the subject of a formal opening for a season.

Rollins Hosiery Mills, Des Moines, Ia., is reported making considerable progress with plans for a full-fashioned unit to be operated as a part of the present plant. The company, selling to the retail trade, has been a large buyer from full-fashioned manufacturers in the East.

Lehigh Silk Hosiery Mills, Philadelphia, is removing from present quarters at Ontario and I Streets to its new factory building at Jasper and Butler Streets, where it will have a 100 per cent increase in its output of women's full-fashioned silk hosiery, sold direct to retailers. Some machinery is being operated in both plants and this will continue until removal has been completed, so that there will be no interruption to production. The company is well supplied with nearby orders and is booking some little business for early Fall.

Gold Seal Knitting Mills, Reading, Pa., recently installed additional spring needle machines for women's silk hosiery. The concern also makes silk half hose of the split foot type.

Gotham Silk Hosiery Co., which some months ago acquired the full-fashioned silk hosiery mill of the Oscar Nebel Co., Philadelphia, will add a number of flat knitting machines.

Howard Hosiery Co., Philadelphia, women's spring needle hosiery, removed in June to D and Ontario Streets, where the company will occupy twice its floor space in the quarters just vacated, and will install an initial full-fashioned unit. The company will continue making its line of spring needle goods, however, for which it reports being well supplied with orders, for deliveries as late as September, in its chiffon number.

Henry Lehmuth Co., women's fine gauge full-fashioned silk hosiery, at Ontario and D Streets, Philadelphia, vacated on July 1, having recently sold the plant to J. K. Voehringer, treasurer of Oscar Nebel, Inc., whose business was taken over by the Gotham Silk Hosiery Co. Whether Charles Lehmuth will re-engage in the hosiery business has not been determined. Rumor says he will.

Book Review.

WARP KNITTING AND GLOVE MANUFACTURE, by Gilbert R. Merrill, Edward Murden, and Joseph Rowan. 125 pages. Illustrated. Bragdon, Lord & Nagle Co., 334 Fourth Avenue, New York City, publishers. Price, $6.00 per copy postpaid.

This book, recently published, is issued in response to the increasing use of warp knitting machines and the consequent growth of this branch of the industry. The book is divided into three parts. Part I is devoted to a description and operation of the Milanese, Tricot and Raschel warp knitting machines. Part II describes all the principal types of fabrics made on warp knitting machines, explains their method of production and has separate chapters devoted to the manufacture of nets, glove fabric underwear and hosiery. Part III contains five chapters devoted to the manufacture of knit fabric gloves, and gives a brief history of fabric glove manufacturing, outlining the steps in making the cloth, and giving complete details in the manufacture of the gloves, and contains a chapter on style tendencies, judging of quality and consumer appeal, etc. The fifth chapter contains a glossary of terms referring to knit fabric gloves. Part II devoted to glove manufacture is contemplated to be of interest and value to buyers and retailers of this class of merchandise as well as manufacturers. Most of the material in the book is the work of Gilbert R. Merrill, instructor and knitting in the Lowell Textile School. The book may be procured direct from the publishers, or through COTTON'S book department, at the price named.